



Agriculture  
Canada

Canadian Agriculture Library  
Bibliothèque canadienne de l'agriculture  
Ottawa K1A 0C5

# HERBACEOUS PERENNIALS

With

## Lists of Varieties for Special Purposes and Districts

By

ISABELLA PRESTON

Specialist in Ornamental Horticulture

DIVISION OF HORTICULTURE  
DOMINION EXPERIMENTAL FARMS

W. T. MACOUN  
Dominion Horticulturist

DOMINION OF CANADA  
DEPARTMENT OF AGRICULTURE  
—  
BULLETIN No. 113—NEW SERIES

630 .4  
C212  
B 113  
n.s.  
1929  
C.2

Published by direction of the Hon. W. R. MOTHERWELL, Minister of Agriculture,  
Ottawa 1929

# DOMINION EXPERIMENTAL FARMS BRANCH

## PERSONNEL

DIRECTOR, E. S. ARCHIBALD, B.A., B.S.A., LL.D.

Dominion Field Husbandman.....	E. S. Hopkins, B.S.A., M.S.
Dominion Chemist .....	Frank T. Shutt, M.A., D.Sc.
Dominion Horticulturist .....	W. T. Macoun.
Dominion Cerealist .....	L. H. Newman, B.S.A.
Dominion Botanist .....	H. T. Güssow.
Dominion Animal Husbandman.....	G. B. Rothwell, B.S.A.
Dominion Forage Crop Specialist.....	G. P. McRostie, B.S.A., Ph.D.
Dominion Poultry Husbandman.....	F. C. Elford.
Chief, Tobacco Division.....	N. T. Nelson, B.S.A., M.S., Ph.D.
Dominion Apiarist .....	C. B. Gooderham, B.S.A.
Dominion Bacteriologist .....	Grant Lochhead, Ph.D.
Chief Officer, Extension and Publicity.....	F. C. Nunnick, B.S.A.
Chief Supervisor of Illustration Stations.....	J. C. Moynan, B.S.A.
Economic Fibre Specialist.....	R. J. Hutchinson.

## ALBERTA

Superintendent, Experimental Station, Lacombe, Alta., F. H. Reed, B.S.A.
Superintendent, Experimental Station, Lethbridge, Alta., W. H. Fairfield, M.Sc.
Superintendent, Experimental Sub-Station, Beaverlodge, Alta., W. D. Albright.
Superintendent, Experimental Sub-Station, Fort Vermilion, Alta., Robt. Jones.

## BRITISH COLUMBIA

Superintendent, Experimental Farm, Agassiz, B.C., W. H. Hicks, B.S.A.
Superintendent, Experimental Station, Summerland, B.C., W. T. Hunter, B.S.A.
Superintendent, Experimental Station, Invermere, B.C., R. G. Newton, B.S.A.
Superintendent, Experimental Station, Sidney, B.C., E. M. Straight, B.S.A.

## MANITOBA

Superintendent, Experimental Farm, Brandon, Man., M. J. Tinline, B.S.A.
Superintendent, Experimental Station, Morden, Man., W. R. Leslie, B.S.A.

## SASKATCHEWAN

Superintendent, Experimental Farm, Indian Head, Sask., W. H. Gibson, B.S.A.
Superintendent, Experimental Station, Rosthern, Sask., W. A. Munro, B.A., B.S.A.
Superintendent, Experimental Station, Scott, Sask., G. D. Matthews, B.S.A.
Superintendent, Experimental Station, Swift Current, Sask., J. G. Taggart, B.S.A.

## NEW BRUNSWICK

Superintendent, Experimental Station, Fredericton, N.B., C. F. Bailey, B.S.A.
---

## NOVA SCOTIA

Superintendent, Experimental Farm, Nappan, N.S., W. W. Baird, B.S.A.
Superintendent, Experimental Station, Kentville, N.S., W. S. Blair.

## PRINCE EDWARD ISLAND

Superintendent, Experimental Station, Charlottetown, P.E.I., J. A. Clark, M.S.A.
--

## ONTARIO

Central Experimental Farm, Ottawa, Ont.
Superintendent, Experimental Station, Kapuskasing, Ont., S. Ballantyne.
Superintendent, Experimental Station, Harrow, Ont., H. F. Murwin.

## QUEBEC

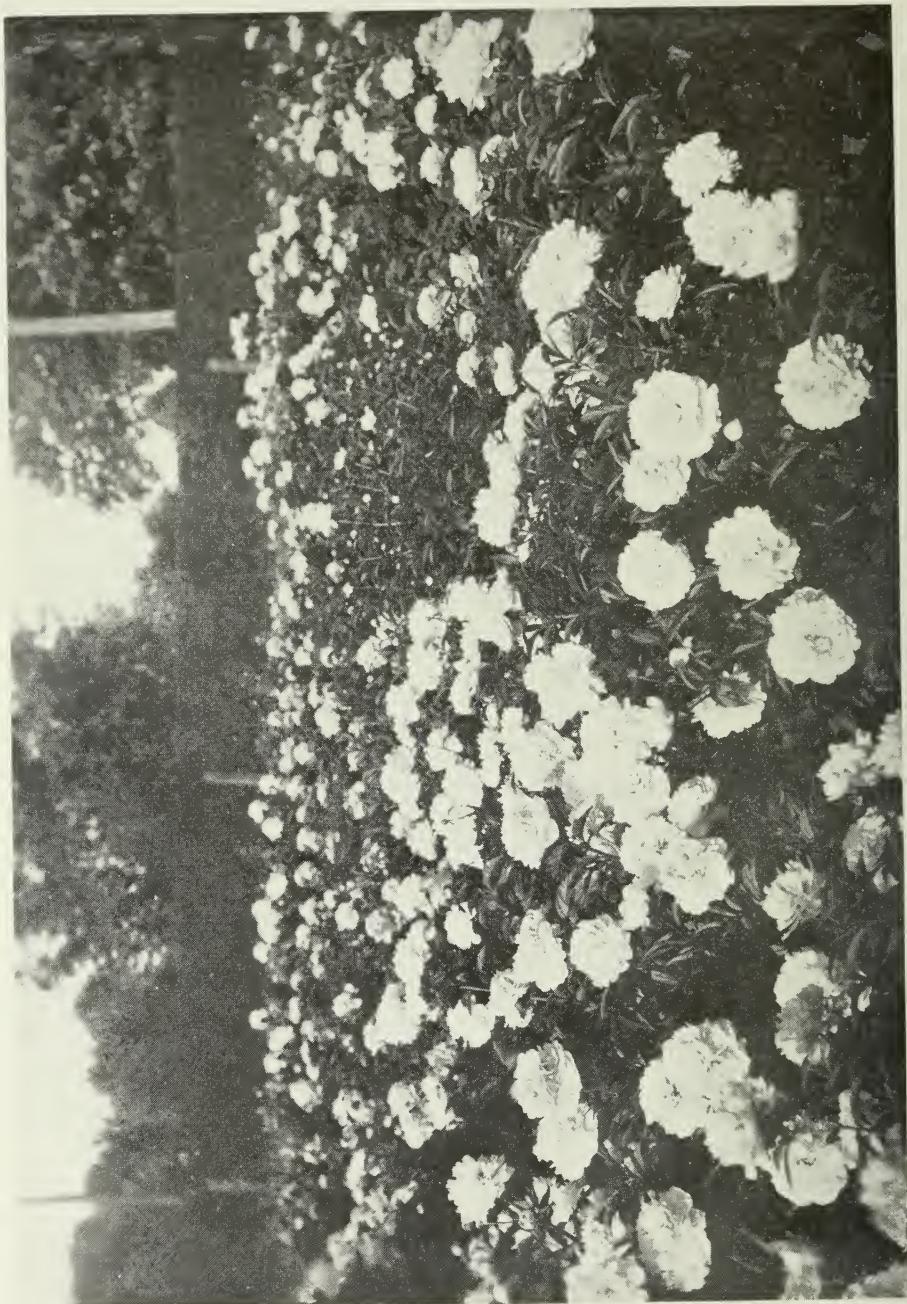
Superintendent, Experimental Station, Cap Rouge, Que., G. A. Langlier, D.Sc.A.
Superintendent, Experimental Station, Lennoxville, Que., J. A. McClary.
Superintendent, Experimental Station, Ste. Anne de la Pocatière, Que., J. A. Ste. Marie, B.S.A.
Superintendent, Experimental Station, La Ferme, Que., P. Fortier, Agr.
Superintendent, Experimental Station, Farnham, Que., R. Bordeleau, B.S.A.
Superintendent, Experimental Station, L'Assomption, Que., J. E. Montreuil, B.S.A.

## TABLE OF CONTENTS

---

	PAGE
The Perennial Border . . . . .	3
Propagation . . . . .	5
Planting . . . . .	6
Staking . . . . .	7
Insect Pests and Diseases . . . . .	8
Best Species and Varieties . . . . .	9
List of Twenty-five Herbaceous Perennials . . . . .	50
Twelve Bulbous Plants for the Perennial Border . . . . .	51
List of Plants for Positions with very little Sun . . . . .	51
List of Plants for Dry Situations . . . . .	51
List of Twenty-five Perennials Recommended for Various Sections of Canada . . . . .	52

DOMINION OF CANADA  
**DEPARTMENT OF AGRICULTURE**  
BULLETIN No. 113—NEW SERIES



Peonies at the Central Experimental Farm, Ottawa. (Photo by Frank T. Shutt.)

# HERBACEOUS PERENNIALS

By ISABELLA PRESTON

---

## THE PERENNIAL BORDER

There are fascinations about a perennial border that are not found in other forms of gardening, and the chief of these is watching for and greeting with delight last year's treasures as they spring up one by one after the snow and frost are gone. Some hardy ones even push up their tips through the melting snow and send out their flower buds on the first mild day.

There is much to interest an observant gardener in noting the differences in habit of growth and colour of foliage of the plants as the young growth appears early in the spring. The bronzy colour of the peony, the bluish leaves of the Virginian bluebell, and the sword-like leaves of the iris illustrate this, but indeed each species has its own habit and can be recognized as soon as it pushes through the ground. In a well planned perennial border there should be bloom from early spring until late fall. This needs care and thought but, like everything else, the pleasure derived from successful achievement more than compensates for the work done.

In a small garden there is frequently no choice of position and following the line of the fence is the obvious place. A position in the open, away from the roots of trees, is best, though shade during part of the day is beneficial to some plants. The width of the bed depends on the length and also on the size of the garden. From five to ten feet is generally recommended. The edge should be straight if the lot is small and rectangular, but a curved edge frequently is effective in a larger space. If the ground is of different levels, or if there are any special permanent features, note should be made of them and the border planned to emphasize these points of interest. When the position is selected the soil must be considered. As the border is expected to remain for some years the soil must be well prepared. The best way to do this is by trenching in the following manner. Mark off a strip across the bed, about one and one-half feet wide, dig out the soil about the same depth and remove this soil to the end of the bed. Break up the soil at the bottom of the trench, then put in a thick layer of well rotted manure. Cow manure is best for light soils and horse manure for heavy land. Mark off the next strip of ground and fill up the trench with the soil. Continue this process until the end of the bed is reached, when the soil that was removed from the first trench is used to fill up the last one. Many people may not be able to take so much trouble in preparing the bed, in which case a heavy covering of the manure should be spread over the surface of the ground and dug in. Whichever method is chosen the work should be done in the fall and the soil left rough so that it will benefit as much as possible from the action of the winter weather. In the spring heavy soils should be given a dressing of hydrated lime and then dug and forked well to get the surface into good condition for planting. The lime tends to lighten the soil. Lime should also be applied on soils that are inclined to be acid and the surface worked up and leveled before planting.

If it is decided to have a border with a straight edge, a line the required length should be fastened to two strong wooden stakes and stretched. A drill

can be marked out along the cord, or the line can be left in position. When the edge is to be curved, the desired shape should be marked out with labels and the cord guided round these.

The time to plant perennials depends a great deal on the species. Bulbs must be planted in the fall. October is, no doubt, the best month, or, at least, four weeks before the freeze-up. As a general rule, spring-flowering plants should be planted in early fall and fall-flowering ones in early spring, although they can be successfully planted at other seasons. When one wants to move a plant in active growth, if the earth is dry, soak it well, then dig up the plant, taking care that a quantity of soil is left around the roots. Make the new hole large enough to take in all the roots and, if the soil is dry, fill the hole with water, let it drain away, then put in your plant, being careful to firm the soil well all



Perennial border at the Central Experimental Farm, Ottawa. (Photo by Frank T. Shutt).

around. Great care must be taken that the plant does not dry out until the roots have fixed themselves in the new position. If the weather is hot the plant should be shaded for a few days. If the plant is to be shipped and it is not possible to leave the soil on the root, wash it off carefully, then cover the roots in damp moss and wrap all up in oiled paper. If the plants dry out in shipping, the roots should be soaked in water before planting. The points to remember when planting are few but important. The hole must be deep and wide enough to take in all the roots without crowding them. The crown, that is the point where the stems and roots join, should be just below the surface of the soil, and the earth must be made very firm around the roots. A good way to test this is to take hold of the stems of the plant and see if it can be moved by a gentle pull. If the earth is not packed around the roots air spaces are left and the root may dry out and die.

## PROPAGATION

Many herbaceous plants are easily raised from seed and this is much the most economical way to stock a border. The chief drawback is the time taken to get flowering-sized plants, as most of them take two years to grow to blooming size. The seed bed should be made in a shady position, though not under trees. If no such place is available, some artificial shade could be provided. The soil need not be rich, but if it is very heavy it would be advisable to lighten it with some sand. The surface soil must be made very fine. A suitable width for the bed is four feet and the length need only be limited by the available garden space. If there is doubt about the drainage the beds can be raised slightly above the level of the surrounding soil. Seeds are sown in drills, which should be six inches apart. The depth to sow depends on the size of the seeds, the large ones about half an inch deep, but the very small ones should only have a little fine soil sifted over them. After the seed is sown and covered, the surface of the soil should be pressed down with the flat side of the rake. When the seeds are scarce and valuable they should be sown in pots or flats (shallow wooden boxes). The seed must be sown thinly. As it is difficult to sow very small seed thinly enough, a good plan is to mix it with a little sand. When the seedlings are large enough to handle they should be transplanted to another bed. They should be three or four inches apart in the row and the rows at least six inches apart. Do this work on a cloudy day, when the soil is damp, if possible. In dry weather soak the bed thoroughly before transplanting and shade carefully until the seedlings show that the roots are established. If the seedlings have been transplanted in early summer they should be ready for their permanent home in the border in September. There does not seem to be any "best" time to sow seeds of perennials. Some, no doubt, germinate quicker if sown as soon as ripe, but others do not. If the seeds are obtained in spring they can be sown in May or June, especially if the seed bed is kept shaded, or they can be kept until fall. At the Central Experimental Farm perennial flower seeds are sown in October just before the ground freezes. They lie dormant all winter and many of them germinate early in spring. Sometimes seeds will stay in the ground for two years, so that it is advisable to make the seed-bed in a position where it can stay undisturbed for that time.

The other common method of propagating perennial plants is division of the roots. This way must be used for plants like iris, peonies, named delphiniums and phlox which do not come true from seed. It is also a quicker way than seed sowing to get stocks of other plants. In an old border the clumps frequently grow large and the centre becomes starved and useless from an ornamental point of view and the flowers seem to be smaller and poorer than they used to be. When this happens the crown should be dug up and pulled apart and the old part discarded, or, if the plant is an especially good variety, these may be planted out into rich soil in rows, while the fresh young divisions are replanted in the border. One frequently sees a gardener dividing a root simply by cutting it with a spade. This is a heartless way to treat a treasured plant and also a very extravagant one, as it invariably happens that some of the roots are left without any top and vice versa. A good division must have a bit of root and an eye of a stem. The best way to do the dividing is to dig up the whole clump, knock off as much of the earth as possible and pull the plant apart with the hands, and when necessary use a sharp knife. If one wishes to get as large a stock as possible the plant may be divided into quite small pieces, so long as each consists of a piece of root and an eye. If, however, one is going to plant in the border the divisions may consist of four or five eyes.

Stem and root cuttings are also used for propagating some plants but the methods described are the usual ones employed by amateurs.

The propagation of spring-flowering bulbs, such as crocus, fritillaria, narcissus and tulip, is by offsets which grow at the sides of the parent bulb. When the clumps are getting crowded and the flowers small the bulbs should be dug up when the leaves have turned brown, which is in June or July. These bulbs are dried gradually and stored until September, when they are cleaned, the large ones being put back into the border and the small ones planted out in a row in the vegetable garden to grow into flowering sized bulbs. The fleshy bulbs of lilies should not be dried out but the young bulbs, which in many species are formed on the stem, should be carefully removed in the late fall and immediately replanted.

### PLANTING

Many writers on gardening say that a planting plan of the border should be made and carefully followed. No doubt a plan is helpful but it is not often possible or desirable to follow it exactly. It is frequently recommended that plants should be arranged in large drifts and no doubt in a big place, where the effect from a distance is important, this method of planting should be followed. However, this bulletin refers chiefly to the small garden where the border is near the house and in such a position scattered bloom all over the border is desirable. In planting, straight lines should be avoided and, as a general rule, the dwarf plants should be in front, the medium tall ones in the centre and the tall ones at the back of the bed. This rule must not be applied too literally or the effect would be stiff. The early spring bulbs can be scattered all through the border and some of the later blooming, medium height plants may come into the front line and the tall ones into the centre. Care must be taken not to plant a tall plant immediately in front of a later blooming dwarf plant, but tall ones may frequently be employed to hide the bare places left by the early-blooming bulbs and plants. It will be found that however much care is taken in the planning of a border some improvements can be made from year to year. It is best to make notes of these changes when the flowers are in bloom and to mark the places in the border with labels or some other suitable marker. It is frequently difficult to remember the exact plant one intended to move when the bloom is over. Another useful reminder is to place labels in the bed at the different seasons when extra plants or bulbs are needed. For example, "Midseason-blooming daffodil required here." When making the plan it is better to have at least three small plants of the same variety of the majority of plants in a clump, except where the border is small. One specimen of large-growing subjects, such as peony, gas plant or oriental poppy, is quite effective. Bulbs should be in larger clumps, about ten of small ones, such as snowdrop, scilla or crocus, and from six to ten of daffodils and tulips. In a large border these numbers could be doubled. Dwarf bulbs should be planted at the front of the bed, though some may be allowed to spread towards the back. The clumps of *Narcissus* (daffodils) should be arranged in a zigzag line through the border and if one can get a clump of Mme. de Graaff, Seagull, or some other pale-coloured variety near some plants of the blue *Mertensia virginica* quite a pleasing effect is produced. Early-flowering tulips are not recommended for a perennial border as they quickly deteriorate and disappear. Cottage and Darwin varieties should be planted in the same way as daffodils. The best effect in a small border would be produced by using one or two varieties only. The deep pink and red ones make the best show but artistic effects can be made by using the pale yellow cottage, such as Moonlight or Mrs. Moon, with mauve or purple Darwins, such as Rev. H. Ewbank or Frans Hals. If one wished to have a border without red flowers in the spring one could use yellow and bronze shaded Cottage and Breeder tulips.

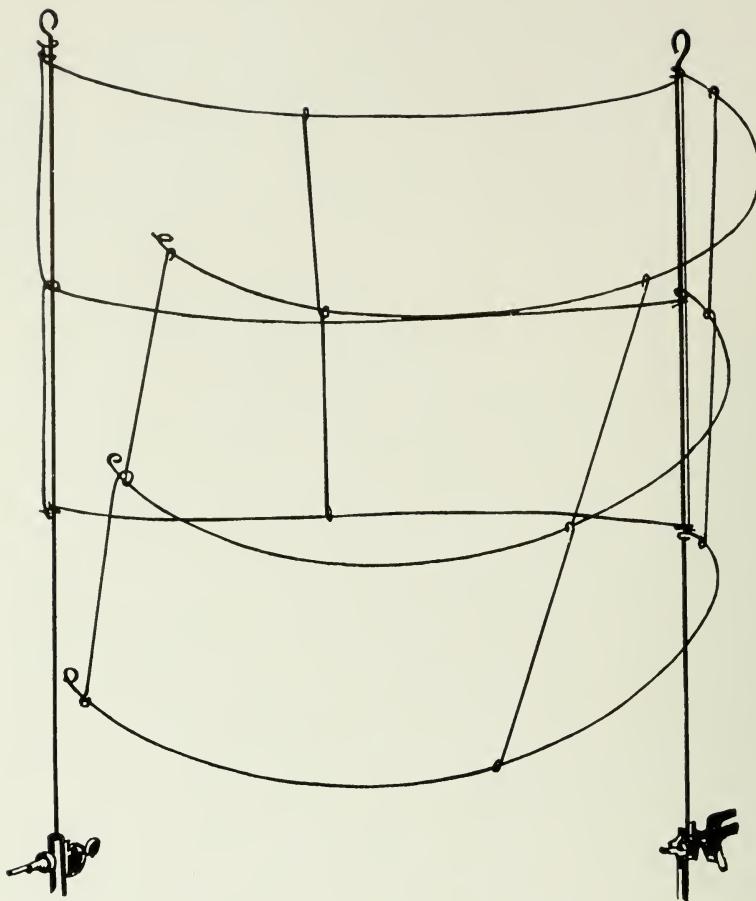
A large number of early-flowering herbaceous plants are dwarf growing, so naturally belong to the front of the border. They may be planted quite close

to the bulbs, or rather the bulbs may be planted in between the small plants which will form a ground cover for the flowers and then grow on and bloom in their turn. Some of these plants are inclined to spread too much, when they are well established, either by seed, like forget-me-not (*Myosotis*), or from pieces of the stem which root and make new plants. When necessary these must be destroyed or more precious plants may suffer. Iris is a species of plant which is needed in quantity in a perennial border. If desired, the early-flowering, dwarf variety may be planted in the front and some of the intermediates in both height and date of bloom may be planted just behind the front line, but it is the tall bearded section which is indispensable in a border. These again can be planted all through the border either in blending or contrasting colours. The number of varieties is very large and many are expensive, but for the purpose of a mixed border some of the old inexpensive ones are all that one needs. Peony is a plant that may be grown in quantity in a large border, but in a small one there is not room for many, if any. The foliage is attractive all season and the flowers are very beautiful. In the fall there are the sneezeweeds (*Helenium*), sunflowers (*Helianthus*), and cone flowers (*Rudbeckia*) for yellow, and the perennial asters in shades of mauve. These plants may be considered the foundation of a hardy herbaceous border and it can be built up with a great variety of other species which will vary according to special circumstances.

When the border is planted it must be kept cultivated and free from weeds. If strong-growing weeds, such as couch grass, are allowed to become established it is almost impossible to eradicate them. The plants should not be allowed to go to seed unless one wishes to save the seed for propagation purposes. If this is the case one should only leave on the plant the number of seed pods required. The plants that die down early in the season should have their tops removed as soon as they become unsightly. At the end of the season the tops are frequently left on the bed as they act as a mulch and help to hold the snow. In districts where there is not much snow, or where it melts during the winter, a mulch of strawy manure or corn stalks or brush is an advantage as the freezing and thawing is very harmful to plants. As soon as the mulch is removed in the spring the bed should be gone over and any plants that have been heaved out by the frost must be pressed firmly down into the soil again. In order to keep up the soil fertility, about every three years a top dressing of well rotted manure or rich soil must be given to the bed. It is easier to use soil, if available, as it does not need digging in which is necessary if manure is used.

### STAKING

Some of the tall-growing plants need some support, particularly if the border is in an exposed situation. To stake plants so that they look natural is quite difficult, but it can be done. Brush can frequently be used and, by putting it in place early in the season, the stems of the plants can be trained to cover it. Canes and wire stakes are also useful, but care must be taken not to tie the plant too tightly. As a rule, the best method to use for a clump of asters and plants of the same habit of growth is to take three or four fairly strong canes, press them firmly into the ground at even distances around the clump, and then tie raffia or twine on the canes so as to make a ring around the plant. The stake should never come as high as the flowers except when it is needed to prevent the stem breaking. It frequently happens that by allowing the plant to hang over a little it can be made to cover a bare spot in the bed. The wire support, as illustrated, is recommended for peonies. It is made of stiff wire, in two pieces, which are put around the plant and fastened together by two pin wires. The height of the support for an average sized peony is fifteen inches. It is twenty inches in diameter.

**SUPPORT FOR PEONIES****INSECT PESTS AND DISEASES**

Information on the control of insects may be obtained from the Entomological Branch, Birks Building, Ottawa. The damaged part of the plant should be sent if possible. Information on the control of diseases may be obtained from the Division of Botany, Central Experimental Farm, Ottawa. The diseased portion of the plant should be sent.

## BEST SPECIES AND VARIETIES

---

Following is a list, arranged in alphabetical order, with short descriptive notes, of the species and varieties of herbaceous perennial flowers recommended for Canadian gardens. As a guide to the novice, an asterisk has been placed against the names of one hundred plants suitable for starting a border. The nomenclature of Standardized Plant Names has been followed in this list.

**Achillea millefolium (Milfoil, Yarrow).**—This has finely cut foliage with clusters of small, daisy-like flowers. The red and purple varieties are the ones generally found in gardens. The white one has become naturalized in many districts. Height  $2\frac{1}{2}$  feet. Blooming season June to October.

\***Achillea ptarmica (Sneezewort).**—This is a small, white, daisy-like flower that grows from  $2\frac{1}{2}$  feet and blooms from June to October. The double variety, "The Pearl," is the one generally grown. It is useful for cutting.

**Aconitum.**—The monkshoods are useful late-blooming plants with dark green foliage and flowers with hooded petals in shades of blue and blue and white.

**A. fischeri.**—Pale blue flowers; height 3-4 feet; August to October.

**A. napellus.**—Deep blue; height 3-4 feet; July.

\***A. napellus var. bicolor.**—This is one of the most attractive and has blue and white flowers. Height 3-3½ feet; July-August.

**Allium (Onion).**—There are several horticultural plants belonging to this family. They are interesting but are not of great value.

**A. cernuum (Nodding Onion).**—This is a native plant of Canada. Height  $2\frac{1}{2}$  feet; August; purplish-lilac.

**A. karataviense.**—Height 1 foot; July; lilac.

**A. moly (Lily Leek).**—Height 3 feet; June-July; yellow.

\***Althaea rosea (Hollyhock).**—These plants are classed by botanists as biennial, but they frequently live for several years. They seed themselves freely so that it is quite easy to keep them in the border. There are both double and single varieties and a large range of colours from white to deep maroon. Height 6-8 feet; July-September.

**Alyssum.**—Dwarf-growing plants that bloom in early summer. The foliage is greyish and flowers of the perennial species are yellow.

**A. rostratum (Yellowhead Alyssum).**—Height 1 foot; June to August.

**A. saxatile (Goldentuft).**—Height 1 foot; May.

**Anchusa (Bugloss).**—This is a coarse-growing plant, but it is desirable because of the intense blue of the flowers. It propagates easily from seed, but the colour of the seedlings varies, so that if a particular plant is an extra good colour it should be propagated by division of the root.

**A. barrelieri (Early Bugloss).**—A hardy species with small, deep blue flowers; height 2-2½ feet; June-July.

\***A. italicica (Italian Bugloss).**—Dropmore variety is a very attractive form with large, bright blue flowers. Height 3-5 feet; June-September.

**Anemone.**—There are a large number of beautiful plants in this genus, but only a few of them are suitable for Canadian gardens. Propagated by seed and division.



(1) *Aquilegia sibirica*—Russian Columbine; (2) *Anemone japonica*—Japanese Anemone; (3) *Delphinium hybridum*—Perennial Larkspur; (4) *Clematis recta*—Ground or Bush Clematis. Photo by F. T. Shutt.

**A. apennina**.—A dwarf plant with attractive foliage and pale blue flowers; height 6 inches; May.

**A. blanda**.—A beautiful species from Greece. Colour varies from white to pale mauve and blue; height 4-6 inches; May.

**A. coronaria (Poppy anemone)**.—These are the brilliant-coloured flowers that are forced in greenhouses for early spring bloom. They are not hardy outdoors in eastern Canada, but grow well at the Experimental Stations at Agassiz, B.C., and Sidney, B.C. They are grown from tubers which are planted in the fall. The flowers are medium size and the colours vary in different varieties, pink, red and blue in several shades being found. Height about 1 foot.

\***A. japonica (Japanese Anemone)**.—This is quite a different kind of plant from the early-flowering species just noted. They bloom late in the season and in Ottawa it frequently happens that the flowers are ruined by early frosts. The roots are hardy and grow into fine plants. Where the season is longer they should be grown in quantity, as there are few flowers so beautiful in the late fall. There are several named varieties which vary in size and in colour. Height 2½-3 feet; September-October.

\***A. patens nuttalliana (American Pasqueflower)**.—This species and *A. pulsatilla* (European pasqueflower) are much alike in habit and time of bloom. The young buds and stems are very unusual in appearance as they are covered with silky, greyish hairs. The flowers are quite large and in various shades of amethyst and purple; height about 1 foot; May.

**A. sylvestris (Snowdrop Anemone)**.—In some gardens this plant becomes a weed as it has creeping rootstocks which spread rapidly. It is, however, a beautiful flower and grows well under trees. The flowers are white; height 6-12 inches; May-June.

**Anthemis tinctoria (Yellow Camomile)**.—The variety *Kelwayi* is the one generally grown. It has golden-yellow, daisy-like flowers; height 2 feet; June-September.

**Aquilegia (Columbine)**.—These are very useful plants for the border as their beautiful foliage is ornamental all through the season and the flowers are graceful in form and attractive in colour. Many of the true species are very beautiful, but they hybridize freely so that one does not always get what one expects. However, the seedlings are generally quite attractive and, if one wishes, it is possible to propagate an individual plant by division of the root. The seeds listed in catalogues are generally long-spurred hybrids.

**A. Caerulea (Colorado Columbine)**.—Long-spurred, blue and white; height 1-2 feet; May-June.

**A. canadensis (American Columbine)**.—This is the plant that is commonly found in the woods of eastern Canada. Height 1-2 feet; scarlet and yellow; May-June.

\***A. canadensis hybrids**.—These are a new strain of Columbines originated at the Central Experimental Farm, Ottawa. They are like the native plant in the shape of the flower but vary very much in size of plant and colour of bloom. There are pinks, blues and purples amongst them. They bloom about two weeks earlier than long-spurred hybrids and are valuable in the garden for this reason.

**A. chrysanthia (Golden Columbine)**.—This is a long-spurred species with yellow flowers; height 2½-3 feet; June-July.

**A. chrysanthia flore pleno**.—A double form of the Golden Columbine.

**A. flabellata nana alba**.—This is a dwarf species with short-spurred, pale cream flowers. The foliage is greyish-green and quite distinct; height 12-15 inches; May-June.

**A. glandulosa (Altai Columbine).**—This is a beautiful blue species but seems to be difficult to grow. Height 12-15 inches; May-June.

**A. sibirica (Siberian Columbine).**—This is the very early-flowering species that has been grown at the Central Experimental Farm for many years under the name of *A. oxysepala*. It has blue sepals and spurs and yellow petal limbs. Height 12-15 inches; early May-June.

**Short-spurred blue hybrids.**—These were originated at the Central Experimental Farm and are crosses of *A. sibirica* with *A. flabellata nana alba*. The best of the seedlings are dwarf plants with large, violet-blue flowers with broad sepals and petals and short spurs. The petal limbs are generally white, but as the flowers hang down they appear to be all blue. Height 12-15 inches; May-June.

**A. vulgaris (European Columbine).**—This is a tall-growing variety that is quite common in gardens. They are stronger growing than the long-spurred types with coarse foliage. They grow into large clumps and carry quantities of bloom. The flowers have not very long spurs and are generally nodding, except in double forms. The colours cover a wide range, white, pale blue, mauve, pink and purple. Height 3-4 feet; June-July.

\***A. long-spurred hybrids.**—There are many strains of these listed by nurserymen and there are few flowers that are more beautiful. They are generally sold in mixed colours. The flowers are large and face outwards and the spurs, frequently very long, are of a deeper shade than the rest of the flower. Height 2-3 feet; June-July.

\***Arabis (Rock Cress).**—This is the popular, early-flowering, white rock plant. It grows well at the front of a perennial border. The double-flowering form is the best, but as the single one blooms a little earlier it is useful to have both. Height 6 inches; May.

**Artemisia.**—The only species of this plant useful for the perennial border is *vulgaris* variety *lactiflora*. This is very desirable, as it blooms in August and September. The cream-coloured flowers are small but grow on long branching spikes as high as six feet on a well established plant. They are propagated from seed or divisions of the root.

\***Aruncus (Goatsbeard).**—This is generally called *Spiraea aruncus* in catalogues. The foliage is attractive and the creamy, feather-like panicles of bloom are very beautiful.

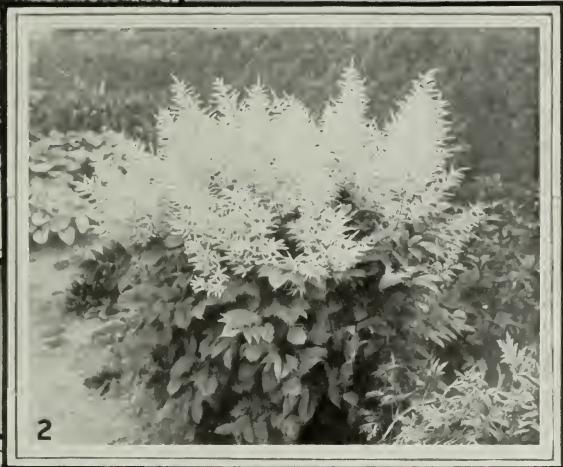
**A. sylvester.**—Height 4-5 feet; June-July.

**A. sylvester kneiffi.**—This has more finely dissected leaves and smaller flowers. June-July.

**Aster.**—This is the Michaelmas Daisy of Europe and the wild aster of Canada. There are a great number of species of this plant that are useful in the garden, several of which are native to Canada, so that when one needs fall-flowering plants they can be sought in the waysides and woods. There are a large number of horticultural varieties also which should find places in the perennial border. These plants should be divided every third year for the best results.

**A. alpinus (Rock Aster).**—This is a dwarf species that has quite large flowers for an aster. Colour bluish; height 6-10 inches; June.

\***A. amellus (Italian Aster).**—This is another large-flowered variety and is very effective towards the front of the perennial border. There are several named varieties of which the following are the best: King George, bluish-violet, August; Queen Mary (syn. Rudolph Goethe), blue; Rubellus, pinkish.



(1) *Aruncus sylvester kneiffii*—Cutleaved Goatsbeard; (2) *Aruncus sylvester*—Goatsbeard; (3) *Phlox glaberrima suffruticosa*—Snowdon; (4) *Incarvillea delavayi*. (Photo by F. T. Shutt).

**A. cordifolius (Blue Wood Aster).**—This is a native plant of Eastern Canada. There are several horticultural varieties which differ slightly in the colour of the flower. Height 4 feet; September-October; blue, lavender.

**A. ericoides (Heath Aster).**—This species has quantities of small flowers which are very attractive. Height 3-3½ feet; September-October; white, pale lavender.

**A. laevis (Smooth Aster).**—The variety "Climax" belongs to this class. Where it grows well it is one of the most beautiful of all asters. Unfortunately it is subject to disease in some gardens. Height 4 feet; September-October; blue.

\***A. novae-angliae (New England Aster).**—This species makes the finest showing in a big border as the flowers have a large number of vivid-coloured ray petals. Lil Fardell, deep rose, and Ryecroft Purple are two of the best varieties. Height 5 feet; September-October.

\***A. novibelgi (New York Aster).**—There are a large number of named varieties in this class. Height 1-5 feet; September-October.

*Blue:* Cloudy Blue, Feltham Blue, Keston Blue, Beauty of Colwall.

*Pink:* Brightest and Best, Marne, Mons, Barr's Pink.

*White:* Snowdrift, White Queen.

**Astilbe astilboides, A. davidi.**—The hardy hybrid Astilbes have been derived from these species. The leaves are dark, glossy green and the spikes of feathery flowers are in shades of pink and white. The plants prefer moist soil and some shade. Height 2-4 feet; July.

**Aubretia.**—These are dwarf plants suitable for rock gardens or the front of a perennial border. They make somewhat straggling clumps of small foliage and are covered in spring with masses of flowers. Purple is the commonest colour but they can be had in various shades of rose, mauve and purple. They are easily grown from seed. If, however, it is desired to increase a special plant it must be done by division of the root or by cuttings, as plants raised from seed vary in colour.

**Bellis perennis (English Daisy).**—Double-flowering forms in white, pink and red are grown for edgings in some gardens. At Ottawa they are not very hardy and seldom live more than one season.

**Bocconia cordata (Plume Poppy).**—This is a coarse-growing plant and is only useful in large borders. It is quite distinct, having roundly heart-shaped, deeply cut up leaves and tall plumes of buff-coloured flowers. Height 9 feet; July-August.

\***Boltonia.**—This is a daisy-like plant that blooms at the same time as the asters but is easily distinguished from them by the less rigid stems and grayish-green foliage. When once established it spreads so that it can be easily propagated by division of the roots. It can be grown from seed.

**B. asteroides** grows about 5 feet and the colour of the flowers is white or pinkish.

**B. latisquama** has larger flowers of purplish colour.

**Bulbocodium.**—This plant is valuable for its early-blooming habit, being one of the first three flowers to open at Ottawa. Eranthis and snowdrop are the others. By the general appearance of the plant one would think it was some kind of crocus, but on closer examination one finds there are several botanical distinctions and they are more nearly related to colchicums.

**B. vernum** is the only species and it has light purplish flowers with very short stems. They are quite hardy and increase from year to year. Grown from bulbs planted in the fall.



(1) *Chrysanthemum maximum*—Shasta Daisy; (2) *Cimicifuga americana*—American Bugbane; (3) *Doronicum plantagineum*—Leopardbane; (4) *Campanula persicifolia alba*—White Peachleaf Campanula. (Photo by F. T. Shutt).

80823-31

**Caltha palustris.**—This is the Marsh Marigold which is found in swampy land in Canada. It will grow in borders if there is plenty of water available. The leaves are large and glossy green and the flowers deep buttercup yellow. It can be increased by division of the root or by seeds. Blooms in spring.

**Camassia.**—These bulbous plants are indigenous to the western United States, but are quite hardy at Ottawa. The bulbs should be planted in fall about three inches deep. The star-shaped flowers are arranged in a loose raceme.

**C. esculenta** is purplish-blue and grows about  $1\frac{1}{2}$  feet high; May-June.

**C. leichtlini** has a cream variety as well as a blue; height  $3-3\frac{1}{2}$  feet; May-June.

**Campanula.**—The bellflowers are a very large family of plants, many of which are extremely useful in the garden either for borders or rock gardens. They can be raised from seed, cuttings or root division. The well-known Canterbury Bell (*C. medium*) is a biennial but can be used quite successfully in the perennial border.

\***C. carpatica.**—The Carpathian bellflowers are of tufted habit and are very useful for the front of the border. There are several varieties which vary slightly in the shade of blue and the size of flower. There are white forms also. The height varies from 9-18 inches; June-September.

**C. glomerata dahurica.**—The Daurian bellflower has purple flowers clustered at the top of the stem. Height  $1\frac{1}{2}$ -2 feet; June-July.

**C. isophylla.**—The Italian bellflower is not hardy enough to be left out in winter, but it is frequently seen in hanging baskets. The white form is particularly attractive.

\***C. lactiflora.**—The Milky bellflower is a tall-growing species with white flowers tinged with pale bluish-violet. Height 3-4 feet; June-August.

**C. persicifolia.**—The Peachleaf bellflower is perhaps the finest and best known of any of the perennial campanulas. The flowers are large and nodding and a clump of them is very effective in the border. There are a number of named varieties, including double forms in both blue and white. Telham Beauty has large, single, china-blue flowers; Moerheimi has semi-double white ones. Propagated by seeds, cuttings and divisions of the root. Height 2-4 feet; June-September.

**C. punctata.**—The Spotted bellflower is not very often seen in gardens. It has large, coarse, hairy basal leaves with erect, slender stems. The flowers are long, bell-shaped and of medium size. The colours are white to clear lilac, generally spotted inside; height 1 foot; June-August.

**C. pusilla.**—This is a dwarf plant, suitable for Rock Gardens, where it spreads freely. The flowers are like miniature harebells. Colour blue and white; height 6 inches; June-July.

**C. pyramidalis.**—The Chimney bellflower has numerous, open, bell-shaped flowers close to the stem in a long spike. It is not quite hardy and is generally treated as a biennial. Height 3-5 feet; July-September.

**C. rapunculoides.**—This is a strong-growing plant which very soon becomes a weed in the border as its roots spread very quickly and seedlings spring up everywhere. The flowers are nodding and purplish-blue in colour; height  $2\frac{1}{2}$  feet; July-August.

**C. rotundifolia.**—This is the bluebell of Scotland and the harebell of England. It has narrow, inconspicuous foliage and a thin, wiry stem. The flowers are nodding and bell-shaped, generally blue in colour, although there is a white form; height  $1-1\frac{1}{2}$  feet; June-August.

**Candytuft.**—See *Iberis*.

**Centaurea.**—The best known species of centaurea are annuals, but a few that are perennial are worth planting in a large border.

**C. macrocephala.**—The Globe centaurea has large, thistle-like flowers of a golden yellow colour; height 2½-3½ feet; July-August.

**C. montana.**—Mountain bluet has violet-blue flowers. There are also white and purple varieties. Height 1½ feet; May-August.

**Cephalaria.**—The flowers of this plant resemble those of *Scabiosa* in form. The plant is tall-growing and only suitable for the back of large borders.

**C. tatarica.**—The flowers are sulphur-yellow in colour and useful for cutting; height 6-7 feet; July-August.

**Cerastium.**—Cerastiums are useful for the front of the border or for roaming over rocks and steps in the rock garden. The foliage is greyish-green so has a colour note of its own even when out of bloom. The plant has a creeping habit and care must be taken that it does not smother out more delicate plants. The flowers are white and freely produced. It is easily propagated by division of the roots.

\***C. tomentosum.**—Snow in Summer is the species generally grown. Height 6 inches; June.

\***Chionodoxa.**—The Glory of the Snow is quite a good name for this beautiful plant as its blue flowers open very early in spring. A few of these bulbs should be planted all through the border and left undisturbed. They seed freely and soon make quite large clumps, which are greatly appreciated because of their earliness. The bulbs should be planted in fall.

**C. luciliae** has striped blue and white, star-shaped flowers.

**C. gigantea** has larger and flatter flowers.

**C. sardensis** is self-coloured and blooms the earliest of the three.

**Chrysanthemum.**—There are quite a number of hardy plants which belong to this family, though generally known by other names. They can be raised easily from seed, but they show great variation amongst the seedlings. For this reason the named varieties or good individual seedlings must be propagated by division of the roots.

\***C. coccineum.**—This is known in catalogues as *Pyrethrum roseum*. It forms a clump of finely cut, green foliage, from which grow the straight stems with a few scattered leaves on them. The flowers are like large, brightly coloured daisies. In the single varieties the yellow disk florets are surrounded by red or pink ray florets. In the double varieties the disk florets are the same colour as the others. The blooms last well and are excellent for cut flowers. European nurserymen list a number of named varieties, but in Canada they are generally grown from seed. The plants should be divided in spring.

**C. leucanthemum.**—This is the common Ox-eye Daisy of the fields, sometimes cultivated in gardens.

\***C. maximum.**—This is the species from which the Shasta Daisy type of plants has been originated. They have larger flowers, more and broader ray florets than *C. leucanthemum* and have a more compact habit of growth. There are several named varieties which come fairly true from seed, but the best seedlings should be increased by division of the roots. The time of flowering varies amongst the different varieties. The following are arranged in order of time of blooming: Early Gem, Shasta Daisy, Westralia, King Edward VII and Mrs. C. Lowthian Bell. Height 1-3 feet; June-October.

**C. uliginosum.**—The Giant daisy is a late-blooming species with flowers that resemble large, white asters; height 4-7 feet; September-October.

**Chrysanthemum.**—The autumn-flowering chrysanthemum that is grown in such large numbers by florists is of horticultural origin and just what species were used as parents is not known. Some of the varieties make excellent garden plants in districts where the season is long enough. At Ottawa they have not been grown successfully. Some seedsmen list seeds of early-flowering strains which, if sown early in spring, will bloom the same year, or they can be treated like other perennials. The plants should be divided in spring every second or third year. The early pompon varieties are generally considered the best for the hardy border. Height 1-2 feet; September-November.

**Cimicifuga.**—Bugbane is a useful plant in a large border, but is not suitable for a small one. The large, deeply cut leaves are very handsome all through the season. The individual flowers are small and white, but are arranged in long racemes that stand high above the foliage. They always attract attention in the garden. The different species are quite similar in appearance, but vary a little in height and time of blooming.

**C. americana.**—Height 5½-6½ feet; July-August.

**\*C. cordifolia.**—Height 5-5½ feet; August-September.

**\*C. foetida simplex.**—Called *C. simplex* by nurserymen. Height 2-2½ feet; October.

**\*C. racemosa.**—Height 6-6½ feet; July-August.

**Clematis.**—This genus is generally known by the climbing species that belong to it, but there are several useful border plants.

**C. heracleaefolia davidiana.**—The Fragrant Tube clematis has good foliage and the flowers are uncommon, although not very striking. They are tubular in shape and are arranged in clusters around the stems. They are bright blue and slightly fragrant. Height 3½-4½ feet; August-September.

**C. integrifolia.**—This species has dull blue flowers, urn-shaped and nodding, with a single bloom to a stalk. There is a white variety. Height 2-3 feet; June-August.

**\*C. recta.**—Ground or Bush clematis is the most useful of the herbaceous varieties. It is very hardy and makes compact clumps covered with small, creamy-white flowers, followed later by a mass of feathery fruits. The seeds are easily carried by the wind, and if care is not taken the seedlings will grow amongst the roots of other plants and become a nuisance. Height 4 feet; June-July.

**\*Colchicum.**—These flowers are frequently called Autumn crocus, which is not a suitable name as they are not related to the crocus family botanically and there are species of true crocus which bloom in the autumn. It is easy to differentiate between crocuses and colchicums because the latter belong to the lily family and have six stamens, while the crocuses belong to the iris family and have only three. The corms of these plants should be planted as soon as they can be obtained, in August, if possible. They are peculiar plants because the large, coarse leaves grow in early summer and are not attractive. They must be allowed to die down naturally and then after they have disappeared and perhaps have been forgotten the beautiful flowers spring up out of the bare ground and continue to bloom until the severe frost kills them.

**C. autumnale.**—Pale purple; height 1 foot; September-October.

**C. bornmulleri.**—Large rose; height 1-1½ foot; September-October.

**C. giganteum.**—Deep rose, white centre; height 1-1½ foot; September-October.

**Columbine.**—See *Aquilegia*.

**Coneflower.**—See *Rudbeckia*.

**\*Convallaria.**—The Lily of the Valley is very well known as a florist's flower, but is not very often seen in gardens. It is not suitable for a mixed border but, as it will grow in shade, even under trees, there is generally some place where it can be planted. The soil should have some well rotted manure and leaf soil dug into it and the plants should be obtained in fall and the crowns planted about six inches apart each way. They increase rapidly and when the bed becomes matted and the flowers small the plants should be dug up, divided and replanted. A top dressing of well rotted manure should be given each year in the fall. If the weather should be dry during the growing season a thorough soaking of water would be beneficial. Height 8-10 inches; May-June.

**\*Coreopsis.**—Tickseed is a useful plant for the hardy border, as it has a long season of bloom if the seeds are not allowed to develop. The plants are inclined to die out in a few years so a few seedlings should be allowed to grow to replace the old plants. The flowers are brilliant yellow and are grown on long, wiry stems so that they are useful for cutting. The perennial varieties are *C. grandiflora* and *C. lanceolata* and there seems to be very little difference between them. Height 1½-2½ feet; June-October.

**\*Crocus.**—These popular flowers are too well-known to need any description. There are a number of varieties in various colours. A good place to grow them is on the sunny side of the house near the wall so they are well sheltered and in such a position that they will open their flowers quite early in spring. The corms must be planted in fall.

**C. biflorus, C. imperati and C. Sieberi.**—These three species have been grown at Ottawa and seem to be quite hardy. They have small, dainty flowers and bloom very early. They are suitable for sheltered spots in the Rock Garden.

**Daffodil.**—See *Narcissus*.

**Daylily.**—See *Hemerocallis*.

**Delphinium.**—The perennial larkspurs are great favourites with all flower lovers. There are few sights more attractive than a bed of them well grown. The tall, handsome spikes in various shades of blue, mauve and purple are known to everyone. There is quite a difference in height, some of the new hybrid varieties growing as high as seven feet under suitable conditions, while *D. grandiflorum* is seldom more than two feet and a half.

**\*D. grandiflorum**, sometimes called *chinensis*, frequently grown as an annual as it blooms a few weeks after sowing the seed is, however, a perennial and quite hardy. The foliage is fine and feathery and the flowers are arranged loosely and not in a dense spike. There are several named varieties sold by seedsmen, such as Azure Blue, Blue Butterfly. Height 2-3 feet; July-August.

**\*D. hybridum.**—Under this name the tall-growing plants so popular in gardens are found. They can be easily raised from seed, but do not come true so that if one wishes to increase the stock of a special plant it must be done by division. If one gets a good strain of seed one is fairly sure to obtain a large percentage of fine seedlings. Many seedsmen have their own strains of these plants. Amongst the newest are the Wrexham, also called Hollyhock Delphinium, which are taller and larger than the usual varieties. The colours of the flowers have a great range, from the palest blue to the deepest purple; some with lavender and mauve shadings and others are white. There are single and double varieties. If the first spikes are cut off before seeding some new smaller flowering stems will appear in the fall. When these are desired some feeding should be given to the roots in the form of liquid manure every week until the buds show colour. Height 4-8 feet; July.

**Dianthus.**—There are a large number of plants in this genus that are useful in the garden; the hardy pinks with their delightful fragrance; the Border

carnations, also very fragrant but not hardy enough for Ottawa conditions; *Allwoodii*, the new hybrid, everblooming pink that also is not quite hardy enough for Ottawa and the various alpine species that are useful for the front of the border and for rock gardens. The pinks and carnations need a well-drained soil that dries early in spring. The dianthus are propagated by seeds and cuttings and the alpine species and hardy pinks by seed and division of the root.

\**D. barbatus*.—The Sweet William is a biennial or very short-lived perennial. It is easily raised from seed and often keeps its place in the border by self-sown seedlings. The colours are from white to deep crimson and the named varieties come true from seed. Height 1-1½ feet; June-July.

*D. caesius*.—The Cheddar pink forms tufts of greyish, narrow leaves, which are covered with rosy-pink flowers. Suitable for a sunny place in the rock garden. Height 6 inches; June-July.

\**D. deltoides*.—The Maiden pink is excellent for the front of the border or for the rock garden if not allowed to crowd out more delicate plants. It forms mats of dark green foliage, which is always attractive. The flowers are rosy-purple. Height 8-12 inches, June-August.

*D. deltoides albus* has white flowers with crimson eye.

*D. deltoides Brilliant* has bright red flowers.

\**D. plumarius*.—The Grass pinks are very attractive. The greyish-green foliage gives a distinct note of colour all season and looks well in the front of the border, where it grows into large clumps. The flowers are dainty and very fragrant and useful for cutting. There are a great many varieties in various shades of pink and white, also double forms. The type with pale pink, single flowers is the hardiest. Other good ones are Mrs. Sinkins, which has double, white, very fragrant flowers, a very old variety; and Miss Gladys Cranfield which has single, rose-coloured flowers, with crimson eye, and is fragrant.

*D. allwoodii*.—These are hybrids of *plumarius* and *caryophyllus* (carnations). In the Old Country they are very popular as they are everblooming and quite easy to grow. There are single and double varieties. They have not been successfully grown at Ottawa, but are well worth a trial in milder districts.

*Dicentra*.—These are plants with fern-like foliage that is quite beautiful and the flowers are well described in the common name, Bleeding Heart. They are easily propagated by division.

*D. formosa*.—The western bleeding heart is a dwarf plant suitable for the front of the border or for rock gardens. The flowers are pink and last for a long time. Height 1 foot; May-September.

*D. spectabilis*.—The common bleeding heart is one of the choicest flowers for the border. It is sometimes injured by spring frosts but it is well worth a trial. The flowers hang down from the arching stems and are very ornamental. Height 2½ feet; May-June.

\**Dictamnus albus*.—The gasplant makes a beautifully rounded bush which looks somewhat like a small shrub, although it is herbaceous and dies down every year. The leaves are dark, glossy green and have a pleasant, aromatic scent. The flowers stand well above the foliage. There are white and pink varieties. They are rather slow growing and should not be moved when once planted. Propagated from seeds and divisions. Height 2-3 feet; June.

*Dielytra*.—See *Dicentra*.

*Digitalis*.—There are several species of foxglove, some of which are true perennials although the one most generally seen is really a biennial. They grow well in partial shade and spread easily from self-sown seed.

\**D. ambigua*.—The yellow foxglove has rather glossy, green leaves and the creamy-yellow flowers are speckled with brown on the inside. It is not a brilliant coloured plant but is quite attractive. Height 3 feet; July-August.

\**D. purpurea*.—This is the species from which the garden foxgloves have been derived. They are really biennials though occasionally some of the plants live longer. They seed freely and when once established renew themselves from seedlings. The flowers are long and pendulous and arranged on one side of the tall stem. The colour is rosy-purple with dark spots on the inside. There are white and light-coloured varieties. Height 2 feet; June-July.

**Doronicum.**—The leopardbanes are useful plants for early flowering. The yellow, daisy-like flowers grow about two feet above the bright green, heart-shaped leaves. They make good cut flowers and last a long time in water.

*D. caucasicum*.—Height 18 inches; May-June.

\**D. plantagineum*.—Height 3 feet; May-June.



Dictamnus albus (gas plant).

**Dracocephalum.**—Dragonhead is not a very common flower in Canadian gardens, but it is worth a place in the front of the border. The flowers are purplish-blue and shaped somewhat like a snapdragon.

*D. nutans* has dense spikes of purple flowers; height 1 foot; June-July.

*D. ruyschiana*, Siberian dragonhead, has narrow leaves and blue-purple flowers; height 1 foot; June-July.

\**Echinacea purpurea* (Synonym *Rudbeckia purpurea*).—The Purple or Hedgehog cone flower is a useful plant for autumn-flowering. The leaves are large and heart-shaped and the flower stems carry a single head of bloom. The rays are reddish-purple and the disk is purplish also. Height 3 feet; August-October.

**Echinops ritro.**—The Steel Globe thistle has bluish-gray flowers that last all summer and can be dried for winter bouquets. The leaves are deeply cut and greyish-green and give variety to the border. Height 3-4 feet; July-September.

**Epimedium.**—The barrenworts should be better known than they are as they are very desirable garden plants. They are graceful in habit, with small, delicate flowers on long stems. The foliage has a bronzy tinge and the leaves are heart-shaped. They will grow in half shade or in sunlight in ordinary garden soil, or in the rock garden. Propagated by division.

**E. macranthum.**—Red, violet or white; height 8 inches; May-June.

**E. pinnatum (sulfureum).**—Yellow; height 12-18 inches; May-June.

**\*E. rubrum.**—Red; height 14-18 inches; May.

**Eranthis.**—The winter aconites are among the first flowers to bloom in spring. They only grow a few inches high so must have a position in the front of the border. The flowers are like small, yellow buttercups and are surrounded by a frill of finely-cut leaves. They spread by self-sown seeds, but, as few seedsmen list seeds, the tubers must be bought.

**E. hyemalis.**—This is the earliest to bloom. April.

**E. cilicia.**—April.

**Eremurus (Foxtail Lily).**—These are striking looking plants for the back of a large border. They have long, strap-shaped leaves and tall spikes of flowers like a column or a candle, which no doubt suggested the common name, "Desert Candlestick". There are several species and hybrids. We have found the following to be the hardiest.

**E. elwesianus.**—Pink; height 6-7 feet; June.

**\*E. robustus.**—Pink; height 6-7 feet; June.

Others worth trying are *E. bungei*, yellow and *E. himalaicus*, white.

**Erigeron.**—The fleabanes are easily grown plants with aster-like flowers.

**E. macranthus** is a little earlier than *speciosus* and a paler colour; height 18 inches; June-July.

**E. speciosus superbus** has lavender-blue flowers; height 3 feet; July-August.

**Eryngium.**—Eryngo and sea holly are the common names for this plant. The foliage is spiny and deeply cut. The flower heads are like teasles and are surrounded by leafy bracts. Propagated by seeds.

**E. alpinum (Alpine Sea Holly).**—Heads nearly globular, metallic blue; height 2-3 feet; June-July.

**E. maritimum (Sea Holly).**—Heads nearly globular, pale blue; height 1 foot.

**Erysimum pulchellum.**—Rockery blisterscress makes a solid mat of finely-cut leaves. The flowers are lemon-yellow and resemble wild mustard but are fragrant and quite attractive in May. Height 6-8 inches.

**Evening Primrose.**—See Oenothera.

**Filipendula.**—These plants are more generally known as *Spiraea*. They have sprays of small flowers. They do well in a moist position in the garden but will grow in ordinary soil.

**\*F. hexapetala (Spiraea filipendula).**—Dropwort has fernlike leaves which form a large tuft on the ground, from which the flower stems rise. The flowers are creamy-white. There is a double variety. Height 2-2½ feet; June-July.

**F. purpurea (Spiraea palmata).**—Japanese meadowsweet is a handsome plant with large, palmate leaves and the flowers on tall stems are pink and carmine in different varieties. Height 3-4 feet; July.

**F. rubra (Spiraea lobata).**—Prairie meadowsweet has leaves green on both sides. Flowers, peach-blossom pink with conspicuous stamens; height 3½-4 feet; July-August.

**F. ulmaria (Spiraea ulmaria).**—European meadowsweet has leaves that are green on the upper surface and whitish on the lower. Flowers, white. There is a double-flowering variety and also one with variegated leaves. Height 3-5 feet; July-August.

**Flag.**—See Iris.

**Flax.**—See Linum.

**Foxglove.**—See Digitalis.

**Fritillaria.**—There are two species of this early-flowering, bulbous plant which are easy to grow and very attractive.

**\*F. imperialis.**—The Crown Imperial is a very distinguished looking plant and coming up, as it does, very early in spring it is particularly desirable. The flowers are bell-shaped and are arranged around the top of the thick stem under a tuft of leaves. The bulbs require rich soil and a top dressing of well rotted manure in early summer seems to suit them. If the soil is too poor the plants do not flower. They should not be grown too near the house as they have a strong odour which is objectionable to some people. Colours: Yellow, orange and reddish-orange; height 2-3 feet; May.

**F. meleagris.**—Checkered Fritillary is quite a different plant from the Crown Imperial. The individual flowers are the same shape, but they are few and grow on thin stems. They need a place in the front of the border. The colour of the flowers varies from white to purple. The inside of the petals are "checkered" with a darker colour. Height 8-12 inches; May.

**F. pudica.**—This is a species from Western America and has small, yellow flowers without markings. Height 6-8 inches.

**Funkia.**—See Hosta.

**Gaillardia.**—The gaillardia or blanket flower is one of the easiest of perennials to grow. It is easily raised from seeds or divisions of the root. If the dead flowers are kept picked off it will bloom all season.

**\*G. aristata**, generally called **G. grandiflora**, is a native of western North America, but has been greatly improved by hybridists. The foliage is thick and greyish-green and the flowers are generally yellow with red markings. There are numerous named varieties which vary slightly in colour. Height 3 feet; June-October.

**Galanthus.**—The snowdrops are one of the earliest flowers to bloom and seem to be ready to open as soon as they can push up their heads through the snow. They should be grown in a clump in the front of the border. In the old country they are naturalized in woodlands and, no doubt, would grow in the same way in Canada. Flowers, white, nodding, with a tip of green on the three inner petals; height 6 inches; April.

**Galega officinalis.**—The common goatsrue is not very desirable, as the flowers do not last long and the plant soon begins to look untidy. Flowers, pea-shape, in racemes, blue or white; height 2-3 feet; July-August.

**Galium verum.**—Yellow bedstraw is quite attractive with its fine, dark green leaves and small, yellow flowers. It must be carefully watched, as the stems lie on the ground, spreading rapidly, and soon smother anything that is growing nearby; July-August.

**Galtonia candicans (Hyacinthus candicans).**—Summer hyacinth is a bulbous plant and should be planted in fall. It is not long-lived at Ottawa and some growers recommend lifting in fall and storing the bulbs in a cool cellar. It is easily raised from seeds, which are produced in quantity. The leaves are long and strap-shaped and the flower spike is from three to four feet. The white blooms are bell-shaped, very like the flower of a hyacinth, but are well separated from each other on the stem. Blooms August-September.

**Gas Plant.**—See *Dictamnus*.

**Gay Feather.**—See *Liatris*.

**Geum chiloense.**—The cultivated avens are called *G. coccinea* in catalogues. They are very showy flowers and continuous bloomers when once established.

**Varieties:** Mrs. Bradshaw; brilliant scarlet; 2 feet. Lady Stratheden; golden yellow; 2 feet.

There are other species of *geum* that are useful garden plants, but they have not been tested at Ottawa.

**Geranium.**—The cranesbills are hardy herbaceous plants and must not be confused with the plants generally called geraniums, which belong to the genus *Pelargonium*.

**G. ibericum.**—Iberian cranesbill has purplish-blue flowers with darker centre; height 1½ feet; June-July.

**G. ibericum var. *platypetalum*.**—This is a larger flowered form.

**G. sanguineum.**—Bloodred cranesbill; height 18-20 inches; May-August.

**Gypsophila paniculata.**—This well-known plant is generally called Babys-breath and is much used for mixing with other cut flowers. As a garden plant it is useful as it can be made to bend over and cover bare spots left by earlier-flowering plants. It should not be tied up tightly, as if it is the feathery grace is lost. Some pieces of brush put around the plant when it is young, and the stems arranged so as to cover them as they grow, will support the plant and not make it look stiff. It prefers a soil containing lime, but does not need one that is rich. It is easily propagated from seed or division. Height 2½-3 feet; July-August.

**\*G. paniculata flore pleno.**—The double-flowering form is more desirable than the type. Seeds of several named varieties are sold and, although all the seedlings do not come true, a large proportion will do so. Height 2½-3 feet; July-August.

**G. repens.**—Creeping gypsophila is useful for rock gardens or for the front of the border. It has white or pale pink flowers; height 7-12 inches; June-July.

**Harebell.**—See *Campanula*.

**Helenium.**—The sneezeweeds are very showy autumn flowers and are perfectly hardy and easy to grow. The flowers have globose discs and drooping ray florets. They are easily grown from seed or division.

**\*H. autumnale.**—Common sneezeweed has golden-yellow flowers; height 3-6 feet; August-September.

**H. autumnale Riverton Beauty.**—Yellow with dark centre; height 4-5 feet; August-September.

**\*H. autumnale Riverton Gem.**—Reddish-brown; height 4-5 feet; August-September.

**H. hoopesi.**—Flowers orange-yellow; height 2½ feet; June.

**Helianthus.**—The sunflowers are amongst the most useful herbaceous plants, as they have a long blooming season and large, showy flowers which are good for cutting, as well as for garden decoration. Unfortunately several of the varieties spread very rapidly and are liable to smother other plants. They are easily propagated by division of the roots.

**H. atrorubens (H. sparsifolius).**—Darkeye sunflower has a dark red disk with yellow rays and is a good plant for the back of the border. Height 5-8 feet; September.

**\*H. decapetalus var. multiflorus.**—This is the parent of several of the garden forms, including Bouquet d'or, double yellow, height 4-5 feet, August-October; Maximus, golden-yellow, height 6½ feet, August-October; Mrs. Moon, golden-yellow, height 4-5 feet, August-October; and Soleil d'or, double golden-yellow, height 4-5 feet, August-October.



*Gypsophila paniculata flore pleno.*

**H. orgyalis.**—The willow-leaved sunflower is a very tall growing species with lemon-yellow flowers; height 7-10 feet; September-October.

**H. scaberrimus (H. rigidus).**—The prairie sunflower has also several cultivated varieties. These are the kinds which spread so rapidly. Variety Miss Mellish is the best. It has semi-double, rich yellow flowers; height 6 feet; July-August.

**\*Heliopsis.**—This is sometimes called the orange sunflower. It is a useful garden plant as it blooms for a long season and a little before the real autumn flowers. It has a good habit of growth and requires no support. It seems to be particularly attractive to aphids and must be sprayed with whale-oil soap or Black Leaf 40. There are several named varieties of *H. scabra*. Height 4-6 feet; June-October.

**Helleborus niger.**—The Christmas rose is not really a rose but it will bloom at Christmas if the climate is not too severe. In Ottawa it blooms in March if the snow is removed when the weather is mild. One gentleman in the city grows it successfully by covering the plants with a box in fall, which prevents the delicate flowers being spoiled by the weight of snow. When he digs away the snow the plants are in bloom beneath the box. The flowers are white, sometimes tinged with pink. They should be planted in September in deep, well drained, sandy loam.

**Hemerocallis.**—The daylilies, or lemonlilies, as they are sometimes called, are very useful hardy plants. The leaves are long and the width varies in different species. Some are grass-like while others are more than an inch wide. The flowers are funnel-form to bell-shaped and are some shade of yellow or orange. There are a number of varieties, all of which are easy to grow in the border either in sun or partial shade. They are easily propagated by divisions of the roots and some of them by seed.

\**H. aurantiaca* (Orange Daylily): 3-4 feet; July-August.

*H. citrina* (Citron Daylily): 4½-5½ feet; August-September.

*H. dumortieri* (Early Daylily): Orange-yellow, faintly bronzed on outside; 2 feet; June.

\**H. flava* (Lemon Daylily): 3½-4 feet; June.

*H. fulva* (Tawny Daylily): 4-5 feet; June-August.

*H. fulva* var. *Kwanso*: Double form; 3-4½ feet; August-October.

*H. hybrida Flaminia*: Pale yellow; 3 feet; June-July.

*H. hybrida Florham*: Rich yellow; 3-4 feet; June-July.

\**H. hybrida Orange Glow*: June-July.

*H. hybrida Orange Man*: 2½ feet; June.

*H. hybrida Sovereign*: Orange-yellow; bronze on outside; 2½-3 feet; June.

*H. middendorffii* (Amur Daylily): Rich orange; 1½-2 feet; June-July.

\**H. thunbergii*: Pale yellow; 4-4½ feet; July-August.

**Hepatica triloba.**—The hepaticas of the woods are well known as early spring flowers for the border. There are several shades to be found amongst them, including white, pink and blue; 6-7 inches; April-May.

**\*Hesperis matronalis.**—Dame's Rocket is a biennial, but when once established in a border it seeds freely and forms colonies. The flowers of the type are purplish, but the white variety is the most desirable; 2½-4 feet; June.

**Heuchera.**—Alumroot is not very often seen in gardens. The flowers are small but form graceful spikes which grow upright from the rosette of leaves. They are particularly good for the rock garden. Propagated by seeds or divisions of the roots.

*H. sanguinea* (Coral Bells) is the most commonly grown. There are several varieties in shades of white, pink and red; 1½-2½ feet; June-August.

**Hibiscus.**—Rose mallow is a bushy-growing plant suitable for large borders. The leaves are large, dark green above, greyish below and the flowers resemble hollyhocks in shape and are white, pink or dark red. The plants are propagated by seed or division of the roots.

**H. moscheutos.**—There are several horticultural varieties which have been derived from this species. Height 5-6 feet; August-October.

**Hosta (Funkia).**—The plantainlilies, or daylilies, as they are sometimes called, are useful plants in the garden, as they will thrive either in sun or shade. They like rich, deep soil with plenty of moisture. They are grown more for their

foliage than their flowers as the leaves are large and handsome and vary in colour from yellow-green to bluish. In some varieties they are uniform green and in others striped or margined with cream. They are propagated by division of the roots and by seeds.

**H. caerulea.**—To this species belong several of the Funkias sold by nurserymen, as:

**F. caerulea.**—Dull green leaves, long-stemmed blue flowers; height 2-3 feet; June.

**F. ovata marginata.**—Large leaves margined with white; lilac flowers; height 2 feet; July.

**H. plantaginea**, better known as *Funkia subcordata*, is the corfu lily, more commonly seen in gardens than other funkias. The leaves are large, light green, deeply grooved. The flowers are white, large and fragrant; 1-2 feet; August-September.

**H. Sieboldiana** has grey-green, heart-shaped foliage and rich mauve-purple flowers; height 2½ feet; July.

**Iberis sempervirens.**—The perennial candytuft is of a shrubby habit and, as the foliage is evergreen, it is very attractive in the border or rock garden. The flowers are white, fading to pink; height 1 foot; June.

**Incarvillea delavayi.**—Delavay's *incarvillea* is the species generally seen in gardens. The flowers are large and showy, trumpet-shaped and rosy-purple in colour; height 2 feet; June-July.

\***Iris.**—Few plants are as satisfactory in the garden as the iris, or flags, as they are sometimes called. They are extremely hardy, easily grown in any kind of soil that is well drained. They increase rapidly, have a wide colour range and long season of bloom. The varieties generally grown belong to the



Iris walk at the Central Experimental Farm, Ottawa. (Photo by Frank T. Shutt.)

bearded group, which term refers to the hairy-like appendages on the haft of the falls. There are many species that are useful in the garden amongst the beardless and bulbous groups and these will be mentioned later.

The chief requirements of bearded iris are well-drained soil and a sunny position. The kind of soil does not seem of great importance but, no doubt, sandy loam suits them well. Some writers say lime is essential but as the soil at Ottawa contains practically no lime this cannot be necessary. The plants are easily propagated by divisions of the root, which may be done at all seasons, but July and August are, no doubt, the best. When planting, the rhizomes should be at the surface of the soil and not covered with earth. When the plants become large and crowded at the centre, which will be in three or four years, the whole plant should be dug up and the roots divided and replanted if possible into a new bed. Fresh manure should never be used, but bonemeal may be added when preparing the soil. In arranging irises for garden pictures the lighter colours should be used in mass, with a few of the darker ones as accents. If too many dark ones are planted the effect is dull and unattractive.

Dwarf bearded are the earliest of this class to bloom. They are garden forms of *I. pumila* and *I. chamaeiris*, bloom early in May and grow from 9-12 inches high. There are white, yellow, blue and purple varieties.

Intermediate have originated from crosses of dwarfs and talls. As their name suggests, they are between the two parents in height and blooming season:

Dorothea—white, shaded lavender; height 2 feet

Fritjof—blue; height 2 feet.

Ingeborg—white; height 2 feet.

Ivorine—creamy yellow; height 1½ feet.

Kochi—violet-purple; height 2 feet.

Tall bearded include the varieties which are generally grown in gardens and the number of them is large and increasing every year. Several species have been used in breeding these plants and it is impossible to classify them according to their origin. A list of good varieties, arranged in colour groups, seems to be the most practical in a publication of this kind.

1. White.—Florentina, Innocenza, Kashmir White, Mrs. H. Darwin, White Knight, White Queen.

2. White feathered with bluish-lavender.—Anna Farr, Camelot, Fairy, Jeanne d'Arc, Mme. Chereau, Ma Mie.

3. White or white and purple standards and purple falls.—Mary Williamson, Mildred Presby, Rhein Nixe.

4. Yellow.—Aurea, Chasseur, Flavesceens, Gold Imperial, Shekinah, Sherwin-Wright.

5. Yellow standards and reddish-purple falls.—Darius, Loreley, Princess Victoria Louise.

6. Yellow standard, brownish or maroon falls.—Iris King, Knysna, Marsh Marigold, Flammenschwert.

7. Lavender-blue and bluish-purple standards and falls.—Albert Victor, Ballerine, Bluet, Celeste, Gold Crest, Eden Philpotts, Lord of June, Mlle. Schwartz, Mlle. Yvonne Pelletier, Pallida dalmatica, Rodney, Violaceae grandiflora.

8. Bluish-purple standards and bluish-purple or deep purple falls.—Alcazar, Amas, Azure, B. Y. Morrison, Crusader, Dominion, Lent A. Williamson, Perfection, Prospero.

9. Purple.—Archeveque, Harmony, Monsignor, Mount Royal, Parc de Neuilly, Souvenir de Mme. Gaudichau.

10. Pinkish-lilac.—Aphrodite, Delight, Dream, Lady Byng, Lohengrin, Mrs. Alan Gray, Queen of May, Susan Bliss, Sweet Lavender, Wyomissing.

11. Reddish-purple.—Caprice, Medrano, Mount Penn, Opera, Tamar.
12. Coppery standards, reddish falls.—Ambassadeur, Deuil de Valery Mayet, Jacquesiana, Nibelungen, Prosper Laugier.
14. Blends.—Afterglow, Asia, Dejazet, Dora Longdon, Eldorado, Ochracea, Quaker Lady, Sherbet Isoline, Magnifica, Glowing Embers.

**A List of Thirty-five Varieties including Early and Late Bloomers and all Colours.**—Afterglow, Alcazar, Ambassadeur, Anna Farr, Anne Leslie, Aphrodite, Asia, B. Y. Morrison, Chasseur, Citronella, Crusader, Delight, Dream, Florentina, Golderest, Juniata, Knysna, Lord of June, Mlle. Schwartz, Mount Royal, Mrs. Alan Gray, Opera, Parc de Neuilly, Princess Victoria Louise, Prospero, Quaker Lady, Rhein Nixe, Rodney, Shekinah, Sherwin-Wright, Souvenir de Mme. Gaudichau, Susan Bliss, Sweet Lavender, Tamar, White Knight.

**Twelve Inexpensive Varieties of Iris for a Small Garden.**—Albert Victor, Aleazar, Flavescents, Knysna, Lohengrin, Mrs. Alan Gray, Opera, Parc de Neuilly, Prosper Laugier, Quaker Lady, Sherwin Wright, White Knight.

When the tall bearded iris are in full bloom the Siberians also are in flower. These are easily recognized by their compact habit of growth, their long, narrow leaves and fine, reed-like stems. They are propagated by division of the roots and seeds. The flowers are smaller than the others and are either some shade of blue or white. *Iris sibirica* and *I. orientalis*, which is similar, belong to the beardless group and will grow well near water, though not in it. They also flourish in the ordinary border and are worth growing. The named varieties have larger flowers than the species and are probably hybrids of *orientalis* and *sibirica*. They vary in height and depth of colour. The white variety, Snow Queen, comes true from seed and is useful for cut flowers.



Japanese iris at the Central Experimental Farm, Ottawa. (Photo by Frank T. Shutt.)

The Japanese iris rank next in importance to the tall bearded. They belong to the beardless group and have long been grown by the Japanese, so that their origin is somewhat obscure. In Japan and Europe they are generally grown in places specially prepared so that the ground can be flooded in summer and drained

in winter. In this country, however, they are quite frequently grown in ordinary garden soil. They must be well cultivated all through the growing season and watered if the weather should be very dry before or during the blooming season. The flowers are large and more or less flat as the standards are small and inconspicuous. The colours are not so varied as in the tall bearded, but there are beautiful shades of blue and purple and extremely choice white varieties. The names are so confused that it is useless to list them. It is better to order them from the catalogue description.

These plants set seed freely but the seedlings show great variation. Named varieties are propagated by division of the root, either in spring or fall. They bloom in July.

Other beardless iris sometimes grown in gardens are:

*I. aurea*—deep yellow; height 3-4 feet; July.

*I. cristata*—pale bluish-lilac; height 6 inches; May.

*I. ochroleuca*—ivory white with yellow blotch; height 3-4 feet; June-July.

*I. pseudo-acoris*.—The yellow flag of English streams grows well at the edges of lakes and rivers as well as in the garden; height 4 feet; June.

*I. versicolor*.—The native blue flag of Canadian marshlands will grow in the border; height 2-3 feet; June-July.

The bulbous iris, grown by florists for winter bloom, do well in gardens in the milder districts of Canada. They are planted in September or October and need the same care as other spring-flowering bulbs.

*I. xiphioides*.—The so-called English iris is native of the Alpine meadows of the Pyrenees. It prefers fairly moist, cool soil. There are several named varieties in different shades of blue, purple and white. They bloom in June and July.

*I. xiphium*.—The Spanish iris are found in different parts of Spain, Portugal and North Africa. They need hot, dry summers to ripen their bulbs, so that it is advisable to dig them up after the leaves have died down and store them inside until late fall. There are several named varieties with white, yellow, blue and purple flowers. They bloom in June.

The Dutch iris are of garden origin. They bloom a little earlier than the Spanish and English.

Other irises that can be grown in gardens when given the necessary care are regelioeyclus hybrids. These were originated by a Holland firm by crossing species that were difficult to grow in cultivation. The roots should be planted very late in fall and after flowering in July they must be taken up and kept dry until October. The flowers are large, richly coloured and conspicuously veined. They bloom early in June and grow about a foot high.

**Kniphofia (Tritoma)**.—Torchlilies are useful plants as they bloom in late summer. They are not quite hardy enough for Ottawa, but should be grown in milder districts. They are propagated by seeds and divisions of the root and will grow in sun or semi-shade.

**Lathyrus latifolius**.—The perennial pea is a useful climber with purplish-rose flowers in clusters. There are pink and white varieties which are more desirable; June-August.

**Lavatera cashmireana**.—This is the species recommended for the border. It is grown easily from seed and makes a large plant with good foliage and quantities of medium-sized pink blooms; height 4-5 feet; July-September.

\***L. thuringiaca variety from Siberia**.—This is a pink-flowering form hardy on the prairies; height 5 feet; July-September.

**Leucojum**.—Snowflakes resemble snowdrops, but are larger and have several blooms on a stem. They are grown from bulbs planted in fall.

**L. aestivum**.—Summer snowflake; height 2 feet; May-June.

\**L. vernum*.—Spring snowflake; height 12 inches; April-May.

*Liatris*.—Gayfeather is a native plant that is useful in the border. The long spikes of rosy-purple flowers are quite attractive; height 3 feet; July-August.

*Lilium*.—The true lilies are amongst the choicest of garden flowers. A few of the species are well known, but the majority are seldom seen in Canadian borders. Quite a number are suitable for ordinary gardens and should be tried. Perfect drainage is the most important point in lily growing and where the soil is heavy or the drainage poor the soil should be removed for about two feet and some gravel or other suitable material put in. Coarse sand and leaf



Lilium regale and cimicifuga in the perennial border at the Central Experimental Farm,

mould should be mixed with heavy soil, but no raw manure is needed. Sandy loam probably suits more varieties of lilies than any other soil, but some will grow in any ordinary garden. They are all grown from bulbs, which, if possible, should be planted in fall. When they cannot be obtained until after the ground is frozen they should be potted and kept in a cool cellar and transplanted to the garden in early spring. Some varieties, like *auratum* and *speciosum*, may be bought in spring and planted in the garden at once. All bulbs should be carefully examined and diseased scales removed. Before planting, the bulbs should be sprinkled with flowers of sulphur as a check to any disease germs that might be present.

Many lilies are easily raised from seed, which is sown and treated in the same way as any perennial seed. For greater safety the more expensive kinds should be sown in pots and the pots plunged up to the rim in soil, covered with leaves and brush for winter, shaded from hot sun in summer and watered carefully when necessary.

Some growers prefer to sow lily seed in a cold frame in spring and mix peat moss with the surface soil.

Of the large number of lilies grown at the Central Experimental Farm the following are considered the most desirable for Canadian gardens:

**L. auratum.**—The Goldband lily of Japan is not easy to establish in the garden but it is so beautiful that most people wish to try it. The bulbs are not obtainable until winter so that in cold districts they cannot be planted until spring. If the bulbs are healthy they will probably flower in September but they frequently disappear in the winter. This bulb will not flourish in limey soil. Light sand and leaf mould are considered the best. The bulbs should be planted 12 inches deep. The flowers are large and open, white with gold band on each segment, more or less heavily spotted. They are very fragrant.

**L. canadense.**—The Canada lily is found growing wild in many parts of Canada. It grows well in ordinary soil, planted about 4 inches deep. It spreads by underground rootstalks. It seeds freely but the seeds take some years to grow to blooming size. The flowers are open bell-shaped and there are both yellow and red forms. Height 4 feet; July.

\***L. candidum.**—The Madonna lily is pure white with golden-yellow anthers and the flowers face outwards. In some gardens it grows well year after year, but in others it does not thrive and it is difficult to know why. The bulbs should be planted two inches deep in August or September so as to give the plants time to grow the rosette of leaves before winter. A good loam with some lime in it seems to be the most suitable soil. Protection from cold winds in spring also should be given. Height 3 feet; July.

\***L. concolor.**—The Morningstar lily is one of the easiest to raise from seed and blooms the second summer. The flowers are upright, star-shaped and bright scarlet in colour. Plant bulbs four inches deep. Height 1 foot; June. The variety Dropmore, raised by F. L. Skinner, Dropmore, Manitoba, is finer than the type.

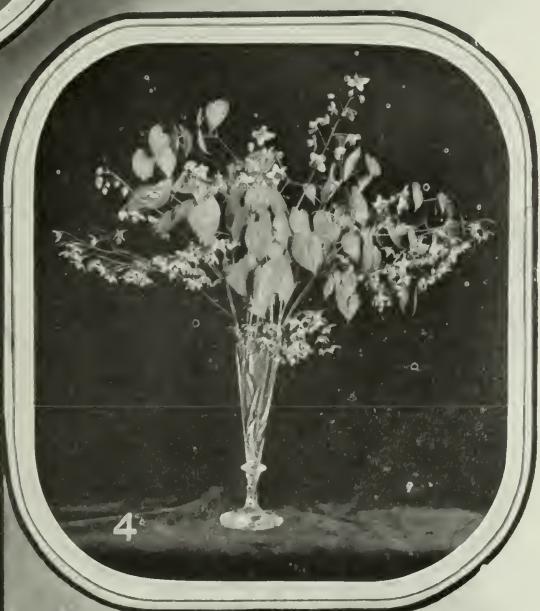
\***L. croceum, dahuricum, elegans, thunbergianum and umbellatum.**—All upright-flowering types with orange and orange-red flowers. They are quite hardy and will grow anywhere. Height varies from 1 to 4 feet; June-July.

**L. davidi.**—David's lily has orange-scarlet flowers with reflexed segments. The flower stems are rigid, which is one of the differences between it and Miss Willmott's lily. It is easily raised from seed. Plant the bulbs ten to twelve inches deep. Height 2 to 4 feet; July.

\***L. Ottawa hybrids.**—This is the name given to some new seedlings raised at the Central Experimental Farm by crossing *davidi* with *willmottiae*. They are more vigorous than either parent, growing as tall as six feet with forty or fifty blooms; August.

**L. hansonii.**—Hanson's lily is one of the first to start into growth in spring but frost does not seem to damage it. The flowers are golden-yellow, faintly spotted, and the segments are reflexed. The colour bleaches in strong sunlight so a shady place should be chosen if possible. This species increases by division of the bulb. Plant six inches deep. Height 3 feet; June-July.

\***L. henryi.**—Henry's lily is one of the latest to bloom. It is sometimes called the yellow *speciosum* as the flowers closely resemble that well-known species in shape. The colour bleaches in hot sun so a position where there is shade during the hottest part of the day suits it best. The soil should be a fairly rich loam to grow the finest plants, which may be seven feet high with over twenty blooms. The stems are not strong enough to support the weight of flowers so that they should be grown behind some bushy plant that will act as a support, or else the stems must be staked. It is easily propagated from seed and bulbs that form on the underground stem. Plant twelve inches deep.



(1) *Lilium auratum*—Goldband Lily of Japan; (2) *Lilium grayi*—Gray's Lily, (3) *Lilium superbum*—American Turkscap Lily; (4) *Epimedium rubrum*—Red Barrenwort. (Photo by F. T. Shutt).

**L. longiflorum.**—The Easter lily of the florists has been grown in the garden in very well-drained soil for several years at Ottawa, but it is not recommended except for mild districts.

**L. martagon.**—The Martagon is supposed to be one of the easiest lilies to grow but for some reason they do not flourish at the Central Experimental Farm. Probably the soil is unsuitable as it is slightly acid. Plant the bulbs about eight inches deep. The flowers of martagon are not large and the segments are reflexed. The colour of the type is pinkish-mauve with fine spots and not very desirable.

**L. martagon album** has pure white flowers.

**L. martagon catani.**—Dark reddish-purple.

**L. martagon dalmaticum.**—Claret.

Where the true Martagons do not succeed it is possible that the hybrids of them with *hansoni* may do so. These are:

\***Dalhansoni.**

\***Marhan.**

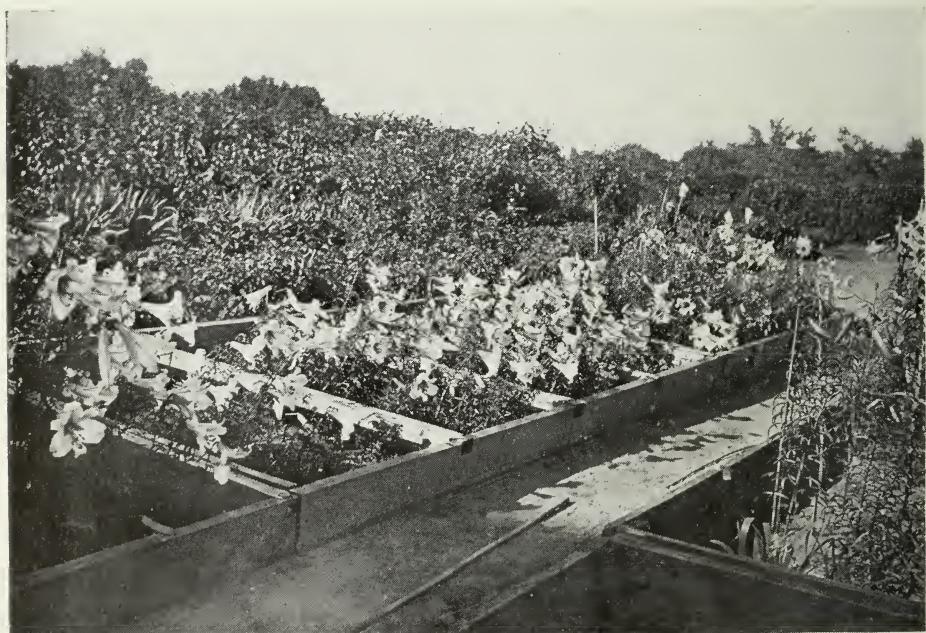
\***Backhouse hybrids.**

**L. monadelphum** (syn. *colchicum*).—The Caucasian lily is an early bloomer with lemon-yellow, open bell-shaped flowers. Plant six inches deep. Height 3-4 feet; June.

**L. philadelphicum.**—The orange-cup lily of Canada is not very easy to establish in gardens.

\***L. princeps.**—This is a cross between *L. sargentiae* and *L. regale*. It flowers a little later than *regale* and is rather a stronger growing plant with broader leaves. It is quite hardy. Plant twelve inches deep. August.

\***L. regale.**—The Regal lily is of comparatively recent introduction but it is rapidly becoming one of the most popular. It is easily raised from seeds and from the small bulbs that are formed on the underground stem. The flowers



Lilium regale and princeps seedlings photographed in July, 1926. Seeds were sown in the greenhouse in December, 1923. (Photo by Frank T. Shutt.)

are tubular, white with yellow in throat and reddish shadings on the outside. It has a pleasing fragrance and good foliage. Plant the bulbs twelve inches deep. Height 3-4 feet; July.

**L. speciosum.**—The *speciosum* lilies are best known as florists' flowers. The bulbs are quite hardy but the flowers are so frequently destroyed by frost and bad weather that they are not satisfactory in the garden at Ottawa. In milder districts, where the season is longer, they should be grown. The flowers are large and the petals are reflexed, white, more or less marked with rose. Plant bulbs twelve inches deep. Height 3 feet; September-October.

\***L. superbum.**—The American Turkscap is a common plant in Canada. It is sometimes called the swamp lily but it grows quite well in ordinary soil. Plant bulbs six inches deep. Height 3-5 feet; July.

\***L. tenuifolium.**—The Coral lily is one of the easiest to raise from seed and seedlings bloom the second year. As this species does not live long in some gardens it is advisable to save seed and grow seedlings each year. The flowers are brilliant scarlet in colour and the petals are strongly reflexed. Plant four inches deep. Height 1-2 feet; June.

**L. tigrinum.**—The Tiger lily is easily propagated by the brown bulbils which grow in the axils of the leaves. These should be sown like seeds in fall. If they are allowed to drop to the ground they should be pressed into the soil. The bulbs should be planted eight or ten inches deep. They seem to grow in any kind of soil but do best in a fairly rich loam. The flowers are large with reflexed segments, orange-red with purplish brown spots; height 3-5 feet; August and September.

\***L. tigrimax.**—This is a new plant raised at the Central Experimental Farm by crossing *L. tigrinum* with *L. maximowiczii*. Flowers orange-scarlet with dark spots, not quite so large as in the Tiger lily; height 5½ feet; August.

\***L. willmottiae.**—Miss Willmott's lily has orange-red flowers with reflexed segments. They are smaller than those of the Tiger lily and the spots are much finer. The flower stalks are fairly long and drooping. Plant bulbs ten to twelve inches deep. Height 2-5 feet; July.

**Limonium latifolium (Statice latifolium).**—Big leaf sea lavender has a tuft of large, leathery leaves and tall sprays of small lavender-blue flowers. The bloom may be cut as soon as it opens and dried for winter bouquets. Height 3 feet; July-October.

**Linaria macedonica.**—Macedonian toadflax has yellow flowers; height 2-3 feet; July.

**Lobelia cardinalis.**—The cardinal flower of North America is worth a place in any garden. The rich scarlet blooms are very attractive and unusual. They need fairly moist soil. Height 2-3 feet; August.

**L. siphilitica.**—Large blue lobelia is also a native plant. Height 1-3 feet; August-September.

\***Lupinus.**—The perennial lupines are varieties of the species *polyphyllus*. They are very desirable plants for the centre or back of a border. The palmate leaves are quite ornamental and, being so unusual, add variety all season. The flowers grow in tall spikes well above the foliage. They are easily raised from seed. There is now a great variety of colours in these plants. Besides the old-fashioned blue we have all shades from pale to dark blue, pale pink to dark red, yellow and apricot tints so that they can be used in any colour scheme by selecting the seedlings. They need good deep soil to come to perfection. There are dwarf and tall varieties and seed can be obtained in separate colours or in mixtures. Height 1-4 feet; June-July.



*L. tigrimax*, a new lily raised at the Central Experimental Farm, Ottawa.  
(Photo by Frank T. Shutt.)

**Lychnis.**—Under this name we find *Agrostemma coronaria* (Rose Campion) a gray-leaved plant with crimson flowers. It is a short-lived perennial but as self-sown seedlings spring up around the old plant it is easily kept in the border. There is a white variety. Height 1 foot; July-August.

\***L. chalcedonica.**—Maltese cross or Jerusalem cross has a cluster of brilliant scarlet flowers. It is easily grown from seed and is quite hardy. Height 2½-3 feet; July-August.

**Lycoris squamigera.**—The Hardy amaryllis grows its strap-shaped leaves early in summer and after they have faded the flower stem, with its cluster of large, mauvish-pink blooms, opens in August. Bulbs may be planted in spring or fall.

**Lysimachia nummularia.**—Moneywort, or creeping jenny, is a trailing plant with yellow flowers, useful for planting on steps or rockwork.

**Lythrum salicaria.**—Purple loosestrife has dense spikes of small, purplish-rose flowers; height 5 feet; June-August.

**Malva moschata.**—Musk mallow is easily grown from seeds. It spreads rapidly from self-sown seedlings so must be kept in check. The foliage is distinct in shape and dark green in colour. The flowers are pink or white; height 2½ feet; July-August.

\***Mertensia virginica.**—The Virginian bluebell or cowslip is one of the most desirable of spring flowers. The foliage is bluish when it first pushes through the ground, but turns to greyish-green later. The blue flowers are very effective grown with pale yellow narcissus. The foliage disappears after flowering. Propagated by seed. Height 1-2 feet; May.

**Monarda.**—Beebalm or horsemint is a familiar plant in old-fashioned gardens, where it is valued for its fragrant foliage as well as its flowers. The blossoms are arranged in round heads. It is propagated by division.

\***M. didyma.**—Crimson; height 3-4 feet; July-September.

**M. fistulosa.**—Mauve; height 3 feet; July-August.

\***Muscari.**—Grape hyacinth is a useful early-flowering bulb for the front of the border. The flowers are inverted urn shape, arranged in a spike. They are a beautiful shade of blue in colour. The bulbs are planted in October and increase from year to year.

**M. botryoides** is the kind generally grown and variety Heavenly Blue is the best. Height 9 inches; May-June. Variety album is a white form.

\***Myosotis.**—The forget-me-not is too well known to need description. It grows well in sun or semi-shade. The varieties generally grown are biennials or short-lived perennials but, as they seed themselves freely, they are easily kept in the border. There are white and pink varieties but they are not so beautiful as the blue. Victoria, Sutton's Royal Blue and Perfection are good varieties.

\***Narcissus.**—This is the botanical name of all the spring-flowering bulbs known as Chinese sacred lilies, daffodils, jonquils and narcissus. Of these the Chinese lily and jonquils are not hardy in Canadian gardens. There are a very large number of varieties, many of which are expensive and only obtainable from specialists, but older and cheaper kinds are excellent for the border and are sold by Canadian seedsmen each fall. The bulbs, as a rule, live for years and in most places increase in number. If in a few years' time, the flowers begin to grow smaller, the bulbs may be overcrowded. In this case they should be dug up when the leaves begin to turn brown in July, stored in a dry place until September or October, and then divided and replanted. They do not need very rich soil but some strawy manure applied as a winter mulch is beneficial. The bulbs should be planted about six inches deep and six to twelve inches apart, according to size. The price of bulbs of the same variety depends upon the size, the larger ones being the best.

There are a number of species of narcissus which have been crossed by breeders to produce the different kinds now available. The horticultural varieties have been classified by the Royal Horticultural Society of England and this is generally used by dealers.

Division 1—Trumpet Daffodils.—Trumpet or crown as long as or longer than the segments of the perianth.

(a) *Yellow*: Emperor, King Alfred, Lord Muncaster, Olympia, Tresserve.

(b) *White or very pale primrose*: Mme. de Graaff, Princess Ida.

(c) *Whitish perianth and yellow trumpets*: Empress, Glory of Sassenheim, Mme. Plemp, Victoria.

Division 2—Incomparabilis—Cup or Crown not less than one-third but less than equal to the length of perianth segments.—

(a) *Without red on cup*: Great Warley, Sir Watkin.

(b) *With red on cup*: Lucifer, Will Scarlet.

Division 3—Barri.—Cup or crown less than one-third the length of the perianth segment.

(a) *Yellow*: Barri conspicuus, Red Beacon.

(b) *Whitish*: Seagull.

Division 4—Leedsi—Perianth white and cup or crown white or cream.—Lord Kitchener, White Lady.

Division 8—Tazetta hybrids, called poetaz by bulb dealers. Flowers in clusters.—

(a) *White*: Elvira, Laurens Koster.

(b) *Primrose*: Klonydye, Jaune à Merveille.

Division 9—Poeticus or poet's narcissus—segments white, corona yellow with red margin.—Glory of Lisse, Ornatus.

Division 10—Double.—Orange Phoenix, Van Sion.

Divisions 5, 6, 7 and 11 have not been tested at Ottawa.

**\*Paeonia.**—The peony is one of the most important of perennials for Canadian gardens. It is very hardy, easily grown, has good foliage all season and beautiful flowers in summer. As peonies may be left in the same position for seven or eight years the ground should be well prepared before planting. The soil should be dug out at least two feet deep and some well rotted manure put at the bottom of the trench before replacing the soil. At planting time bonemeal may be mixed with the top soil, a small handful for each plant. Fresh manure should never be used for peonies. The best time to plant is in late August or September. The roots must be obtained from growers as they do not reproduce themselves from seed. When planting, the roots should be deep enough so that the eyes or buds are two inches below the surface of the soil. They may be shallower, but on no account should they be deeper, as deep planting seems to prevent blooming. The earth should be carefully worked in around the roots and made firm. About four feet is the distance to leave between plants. If the ground has been well prepared no fertilizers are necessary for three or four years. After that a top-dressing of bonemeal in fall or of sheep manure in spring would be beneficial. The position chosen must be well drained and sunny.

To increase one's stock by division it is best to dig up the plant, wash the soil from it and divide the roots. Each division should have three or four eyes unless it is desired to make as many plants as possible, then one eye might be sufficient. For ordinary garden purposes larger divisions are more satisfactory.

The peony bed must be kept cultivated all through the season.

Peonies may be planted in the perennial border; one or two plants if the border is small, or more in a large one. If space permits beds planted with peonies alone, with grass walks between, are very effective, or beds by the side of a walk frequently add to the garden picture. In such a position early bulbs,

like *chionodoxa* and *scilla*, might be planted amongst peonies and an edging of Sweet Alyssum or other low-growing annual could be used so as to have a little colour when the peonies are out of bloom.

Some growers prefer to cut the leaves off the plants before winter to prevent any disease spores being carried over until the following season and no doubt this should be done if there is any sign of disease in the plantation.

The peonies generally grown are supposed to have been originated from *Paeonia albiflora*. They are generally called Chinese peonies. These can be divided into three main classes:

**Single.**—With one row of petals and the golden anthers very conspicuous.

**Varieties:** *albiflora* The Bride, white; *Le Jour*, white; *L'Etincelante*, pink; The Moor, dark red.

**Japanese.**—With one row of petals and instead of true stamens there are narrow petaloids in the centre of the flowers.

**Varieties:** King of England, dark madder red; Mikado, crimson; Tokio, pink.

**Double.**—These are again subdivided by specialists but it is not necessary to do so here. There are hundreds of varieties under this heading, so a small selection of moderate priced ones, made by Mr. Macoun, is given here:

**White:** *Duchess de Nemours* (Calot), *Le Cygne*, *Marie Lemoine*.

**White, edged or flecked with crimson or carmine, and flesh white:** *Avalanche*, *Baroness Schroeder*, *Couronne d'Or*, *Enchantress*, *Festiva Maxima*, *La Rosiere*, *Madame de Verneville*, *Madame Emile Lemoine*, *Marie Jacquin*.

**Pale pink and pale pink fading to white or edged with white:** *Asa Gray*, *Eugene Verdier*, *Grandiflora* (Richardson), *Mademoiselle Leonie Calot*, *Madame Jules Dessert*, *Marguerite Gerard*, *Octavie Demay*, *Solange*, *Tourangelle*, *Triomphe de l'Exposition de Lille*.

**Pink:** *Claire Dubois*, *Edulis superba*, *Livingstone*, *Madame Auguste Dessert*, *Madame Geissler*, *Modeste Guerin*, *Monsieur Jules Elie*, *Therese, Walter Faxon*, *Sarah Bernhardt*.

**Red:** *Felix Crousse*, *Longfellow*.

**Dark Red:** *Adolphe Rousseau*, *Monsieur Martin Cahusac*, *Philippe Rivoire*.

Other peonies occasionally seen in gardens in mild districts are horticultural forms of *P. mutans*, generally called Tree peonies. These are small shrubs and bloom a little earlier than the Chinese section.

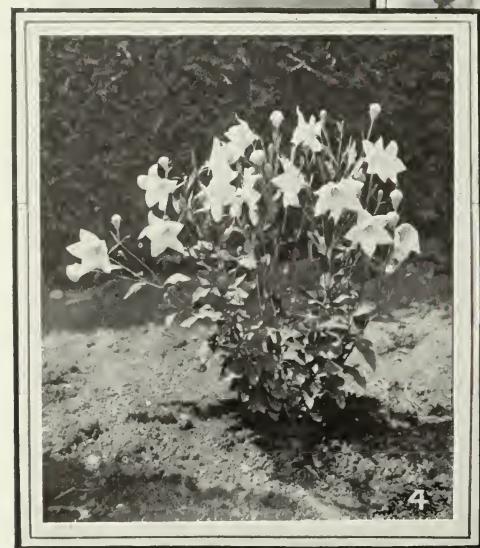
The double crimson peonies found in old-fashioned gardens are *P. officinalis*. These are very hardy and bloom a little earlier than Chinese.

**Papaver.**—Poppies are very showy plants for the border. They are generally raised from seed, which can be sown either in spring or autumn. As it is very fine seed it must be sown on the surface and pressed into the soil but not buried. The seed bed should be kept shaded until the seed germinates.

**P. alpinum.**—The Alpine poppy is a low-growing form suitable for rock gardens. The foliage is greyish-green and finely cut. The flowers are white, yellow or salmon; height 6 inches; May-June.

**\*P. nudicaule.**—The Iceland poppy should be freely planted in the front of a border as it has a long period of bloom and pretty delicate foliage. The old kinds were yellow or white but the new strains, such as Paradise and Sunbeam, have quite a number of shades of orange and salmon. Height 1-1½ feet; May-October.

**\*P. orientale.**—Oriental poppies are amongst the most gorgeous flowers and always attract attention. They have only a short season of bloom and the foliage soon becomes untidy and disappears. This fact must be remembered when planting so that asters or some other late-blooming plant may be grown in front, or annuals can be used to fill in the space. The majority of Oriental



(1) Papaver orientale—Oriental Poppy; (2) Iris, bearded varieties; (3) Trollius europaeus—European Globeflower; (4) Platycodon grandiflorum—Balloon flower. (Photo by F. T. Shutt).

poppies are red, but there are named varieties of different shades sold. As these do not come true from seed the plants are propagated by division of the roots, which should be done in August when the plant is dormant. Height 2-2½ feet; May-June.

**Pentstemon.**—The pentstemon or beardtongue is a native plant that is sometimes seen in gardens.

**P. barbatus.**—Crimson-scarlet; height 3-4 feet; July-August.

**P. ovatus.**—Bluish and lilac-purple; height 2 feet; June-July.

**Phlox.**—There are several species of phlox very popular in the garden.

**P. amoena.**—Dwarf plant with rosy-pink flowers; May-June.

**P. divaricata.**—The native species with lavender-blue flowers. It does well in either sun or half shade. Height 6-12 inches; May-June.

\***P. subulata.**—The moss pink is the best known of the early-flowering phloxes. It is useful for the front of the border or for the rock garden, and grows into large spreading masses of dark green foliage which is covered with flowers in May. It is propagated by cuttings and division of the roots. Height 4-6 inches.

**P. subulata alba.**—White.

**P. subulata Daisy Hill.**—Clear pink.

**P. subulata lilacina.**—Pale lavender blue.

**P. subulata rosea.**—Deep pink.

\***P. paniculata (decussata).**—The late summer-blooming perennial phlox have been derived from this species. They are extremely useful garden plants as their showy flowers bloom over a long season towards the end of summer. The named varieties are propagated by division of the roots or by cuttings. Seed is sold by seedsmen and many fine plants can be raised by this means at



Phlox paniculata in the perennial border at the Central Experimental Farm.  
(Photo by Frank T. Shutt.)

little cost. The poor seedlings should be discarded and the good ones kept and increased as desired.

Phlox will grow in sun or half shade, but they require rich soil, deeply dug. They dislike drought so should be well soaked with water once a week during dry weather. The plants should be taken up and divided every third year for best results. The height and date of blooming in different varieties varies a great deal. The length of the blooming season can be prolonged by keeping the seed pods cut off so that the side-shoots may grow and flower.

The following is Mr. Macoun's list of good garden varieties with height and blooming date:—

**Antonin-Mercie.**—Bright violet suffused with white, large white centre; 3 feet; July 12-September.

**Eclaireur.**—Bright rosy magenta, shading lighter; 2½-3 feet; July 4-October.

**Elizabeth Campbell.**—Salmon pink, shading brighter; 1½-2½ feet; July 25-October.

**Etna.**—Bright crimson red with darker centre; 2-3 feet; July 29-October.

**Europe.**—Pure white with crimson-carmine centre; 3 feet.

**Fiancee.**—Pure white; 3 feet; July-September.

**Geo. A. Stroehlein.**—Orange-scarlet; 1-2 feet; July 29-October.

**Le Mahdi.**—Deep purple with carmine eye; 1½-3 feet; July 22-October.

**Mia Ruys.**—White; 1-1½ feet; July 16-October.

**Pantheon.**—Crimson-pink suffused with white about the centre; 2-2½ feet; July 21-October.

**Selma.**—Lilac-rose with conspicuous crimson eye; 1½-4 feet; July 21-September.

**Tapis blanc.**—Dwarf white; 1½ feet; July 19-September.

**Thor.**—Carmine, conspicuously lighter about a dark eye; 1-3 feet; July 23-October.

**Viking.**—Fine, tall, salmon-pink; 2-4 feet; August 21-October.

**W. C. Egan.**—Large, pale lilac-rose with red eye; 2-3 feet; July 20-October.

**Widar.**—Bright violet with large, white centre; 2-3½ feet; July 22-September.

**Miss Lingard.**—This early-flowering white really belongs to *P. suffruticosa* but is much like the others except that the leaves are more glossy.

**Physostegia virginiana.**—False dragonhead is still another native plant worthy of a place in the hardy border. It has soft pink tubular flowers in closely set spikes; height 3-4 feet; August-September.

**Pink.**—See *Dianthus*.

\***Platycodon grandiflorum.**—The balloon flower takes its name from the shape of the buds just before they open. It is nearly related to the campanulas but has a slightly different habit, being more upright in growth and having stronger stems. The flowers are blue or white and open out flat. It prefers sandy loam soil and the roots should be planted an inch below the surface of the soil. It is best to raise it from seed as the roots do not divide easily. Height 2-3 feet; July-August.

**Polemonium.**—The polemoniums have pale blue flowers with conspicuous yellow anthers. The foliage also is attractive. Propagated by seed.

\***P. caeruleum.**—2½-3 feet; June-July.

**P. humile.**—Dwarf polemonium; height 6-12 inches; May-June.

**Polygonatum.**—Solomonseal is a useful plant for shady borders. The arching stems rise up from the rootstalk and the white, tubular flowers hang down below the leaves.

**P. multiflorum.**—European solomonseal; height 2-3 feet; May-June.

**P. thunbergi.**—1½ feet; June.

**Potentilla.**—The cinquefoils have leaves like those of strawberries. The flowers also, in the single varieties, are somewhat similar except that they are coloured instead of white. There are a large number of varieties but only a few are listed by Canadian nurserymen. The species are easily raised from seed but the hybrids must be propagated by division of the roots.

**P. atrosanguinea.**—Crimson; 1 foot; July.

**P. nepalensis.**—Rose; 1 foot; July-September.

**P. rupestris.**—White; 1½ feet; May-July.

**Poterium obtusum.**—Japanese burnet is quite hardy at Ottawa and has good foliage all season. Its purplish-rose flowers remind one of small bottle brushes. It can be raised from seed. Height 2-3 feet; July-August.

**Primula.**—The primroses are amongst the most charming of flowers but unfortunately our dry summers are not suited to them so that they need special care. The various species are raised from seed, which should be sown as soon as it is ripe in July, or in spring. As the seed is very fine and rather difficult to handle it is advisable to sow it in flats. Keep the flat shaded and carefully watered and transplant the seedlings into cold frames when they are large enough to handle. The plants may be put out into their permanent quarters either in September or early spring. Large plants may be divided immediately after flowering. They should be planted in a shady position if possible and they must be well soaked with water when the weather is dry.

**P. acaulis (P. vulgaris).**—The English primrose of old country woodlands and the coloured garden varieties are not often seen in Canadian gardens, but in fairly good soil in a half shady position they should grow well. Height 6 inches; May-June.

**P. auricula.**—The true species has yellow flowers but the garden auriculas, which are very old cultivated plants, have richly coloured velvety blossoms. They are easily distinguished from primroses and polyanthus by their grayish-green leaves without conspicuous veins. The flowers are in clusters and are fairly large. The plants can be raised from seed but named varieties are propagated by division or cuttings. Unfortunately auriculas are not very hardy and need a sheltered spot in the garden. Height 6-8 inches; May-June.

**\*P. denticulata.**—The Himalayan primrose seems to be quite happy under Ottawa conditions. The leaves form a small rosette from which the flower stem rises. The flowers are arranged in tight round heads and their lilac colour makes them quite effective in the border or rock garden. Height 6-12 inches; April-May.

**P. denticulata alba** is a very attractive white variety.

**P. farinosa.**—The Birdseye primrose has small rosettes of greyish-green leaves that seem to be covered with meal. The flowers are pinkish-mauve in small loose heads. It grows well in rock gardens. Height 6-12 inches; May-June.

**\*P. polyantha.**—The polyanthus or Bunch primroses are probably the best known and most useful ones for the garden. They do well on the shady side of a house and make a great show early in spring. There are a number of strains of seed of mixed colours and the Munstead strain has large cream and yellow flowers.

**\*P. sieboldi.**—Siebold's primrose does well in cool, light, rich soil that is well drained. They are free flowering and come in shades of pink, mauve and white; height 10 inches; June.

**\*P. veris.**—The cowslip of English meadows has small, yellow flowers in clusters. There are coloured varieties which are easily distinguished from polyanthus because the flowers droop instead of facing upright. The cowslips grow naturally in the open in drier soil than primroses so that they should grow more easily in Canada. The variety *macrocalyx* does very well at Ottawa. It takes its name from the large size of the calyx.

**Pulmonaria saccharata maculata.**—Spotted lungwort is grown for its handsome, dark green foliage which is heavily spotted with silver. The flowers are purplish blue and pink; height 1 foot; May-June.

**Puschkinia scilloides (libanotica).**—This is a spring-flowering bulb which must be planted in September or October. It is not nearly so attractive as *chionodoxa* and *scilla*. The flowers are milk-white with a narrow, pale blue line down the middle of each segment; height 4 inches; April-May.

**Pyrethrum.**—See *Chrysanthemum*.

**Ranunculus.**—The buttercup family is a large one but there are not many species grown in gardens.

**R. acris flore pleno.**—Tall buttercup or double buttercup is frequently seen in old-fashioned gardens. It is quite hardy. Height 1-3 feet; May-October.

**Rudbeckia.**—The coneflowers are native plants of North America and useful for late summer blooming. They are hardy and easily propagated from division of the roots.

**R. fulgida.**—Orange coneflower has orange-yellow ray florets with black-purple disc; height 3 feet; July-August.

**R. hirta.**—Black-eyed Susan is too well known to need description. Height 1-3 feet; August.

**R. laciniata.**—Cut-leaved coneflower is not often seen in gardens but the double form is the well-known golden glow. Height 7-8 feet; July-September.

**R. nitida.**—This species has yellow florets and disk; height 5-6 feet; August-October.

**R. purpurea.**—See *Echinacea*.

**\*R. speciosa (R. newmanni).**—Showy coneflower has golden-yellow florets and black disc; height 2-2½ feet; August-October.

**\*R. subtomentosa.**—Sweet coneflower has soft, yellow florets with short, dark cone; height 3-4 feet; August-October.

**R. triloba.**—Brown-eyed Susan is really a biennial, but once established it seeds itself freely and makes the border gay quite late in the season. This variety must be propagated by seed. Height 2-4 feet; August-October.

**Salvia.**—The sage that is best known is a tender perennial grown as an annual. There are, however, a number of hardy perennial species but they are not common in Canadian gardens. They are raised from seed and are not particular as to soil but like plenty of sun.

**S. azurea grandiflora.**—Great Azure sage has blue flowers in September and October; height 4½ feet.

**S. sclarea.**—Common clary has large greyish leaves and tall spikes of mauve flowers. It is really a biennial but seeds itself freely. Height 2-3 feet; July-August.

**S. verbascifolia.**—This has purple flowers; height 3 feet; June-July.

**S. virgata.**—Oriental sage has blue flowers with red bracts; height 2 feet; June-July.

**Sanguinaria canadensis.**—The bloodroot of the Canadian woods is a useful plant for a shady border. The leaves are palmate and when first showing in spring are neatly rolled. The flowers are white. There is a thick red juice in the stems when broken, which gives the plant its name. Height 6 inches; May.

\***S. canadensis flore pleno.**—The double-flowering variety has recently been put on the market. In habit it is like the single form, but the flowers are fully double.

**Saponaria ocymoides.**—Rock soapwort is a creeping plant with starry rose-pink flowers; height 9 inches; June.

**S. officinalis.**—Bouncing Bet has an upright habit of growth and the flowers are arranged in a close cluster. They are pinkish mauve or white. The plants spread rapidly and can be divided easily or grown from seed. Height 3 feet; July-October.

**Saxifraga.**—The saxifrages are a large family of plants but, as none grow well in an ordinary border, they will only be mentioned here.

**Scabiosa caucasica.**—The Caucasian scabious is the perennial species and has flowers somewhat resembling the annual varieties in shape. The colours, however, are not so varied, being shades of blue, mauve and purple. They are propagated from seed or division, but at Ottawa they have not been found easy to establish. They need well-drained deep fertile soil in a sunny position. Height 2 feet; July-August.

\***Scilla.**—The squills are bulbous plants of the easiest culture. They thrive either in sun or shade. The bulbs should be planted in September or October and they will spread and seed themselves if allowed to do so.

**S. hispanica (campanulata).**—The Spanish squill is the tallest and latest blooming of the three commonly grown squills. The flowers face upwards and outwards instead of hanging down. There are varieties with light and dark blue, rose and white flowers. Height 12-15 inches; June.

**S. nonscripta (nutans).**—The common blue squill or wild hyacinth of English woodlands grows well in sun or half shade. The shape of the individual flowers is much like that of a Dutch hyacinth but there are only a few loosely arranged at the top of the stem. There are the same colours as in the Spanish Squill. Height 12 inches; May-June.

**S. sibirica.**—The Siberian squill is frequently seen in Canadian gardens. It is easily grown and even around the roots of trees or amongst shrubs it seems quite at home. It is a dwarf-growing plant with three or four deep blue bells on a stem. There is a white form also. Height 4-6 inches; April-May.

**Sedum.**—The stonecrops are chiefly useful for the rock garden and for planting on flagged walks and steps. They are propagated by seeds or division.

**S. acre.**—Goldmoss is often found wild in Canada but it is not really a native plant. It is very useful for covering rocks in exposed places as it seems to need very little soil. The flowers are yellow and completely cover the foliage; height 3 inches; June-July.

**S. album.**—White stonecrop; height 8 inches; July-August.

**S. kamtschaticum.**—Orange stonecrop; height 1 foot; June-August.

\***S. spectabile.**—Showy stonecrop is a useful plant for the border as it blooms late in the season. It has greyish-green foliage and clusters of pink flowers; height 12-18 inches; September-October. Variety Brilliant has deep rose coloured flowers.

**Sempervivum.**—Houseleek is another of the succulent plants useful for rock gardens. They also like warm situations and will grow where many plants would wither away. The leaves are arranged in close rosettes from the centre of which the flower stalk rises. They are propagated from seeds or divisions.

**S. tectorum.**—Roof houseleek is a useful edging plant. A single row of rosettes soon increases and makes a dense mat. The flowers are not important except that the rosette that produces them dies but the small ones around it soon fill up the space.

**Shasta Daisy.**—See *Chrysanthemum*.

**Sidalcea.**—Prairiemallow is one of the most useful summer flowers and should be more generally grown. It is related to the mallows and lavateras but has different foliage and a neater habit of growth. The leaves are rich, dark green and slightly cut. The stems are upright and the flowers grow all along the stalk. They are easily raised from seed though the named varieties must be propagated by division.

**S. candida.**—White prairiemallow is not so attractive as some of the others. Height 3-4 feet; June-August.

**S. malvaeflora.**—Checkerbloom has rose coloured flowers; height 4-5 feet; July-August.

\* The horticultural varieties, *listeri*, Rose Queen and Rose Beauty, belong to this species. They vary in colour and size of bloom.

**Solidago.**—Golden rod is quite useful in a large border but it should not be allowed to seed as it may spread and become a nuisance. Height 4-5 feet; August-September.

**Spiraea.**—See *Aruncus*, *Astilbe*, *Filipendula*.

**Stachys lanata.**—Woolly betony is grown for its grey foliage, which is like silvery plush. The flowers are purplish but not very attractive; height 1 foot; July-August.

**Statice armeria (Armeria maritima).**—Thrift is useful for edgings and for the rock garden. The leaves are narrow and grasslike and make solid clumps from which spring the small heads of pink flowers. Height 6 inches; July.

**Statice latifolia.**—See *Limonium*.

**Thalictrum.**—Meadow-rue is grown for its attractive foliage as much as for its flowers. The leaves are like those of columbine but more finely divided. The clusters of small flowers are on tall stems and stand up well above the foliage. Propagated by seed or division.

**T. aquilegifolium.**—Columbine meadow-rue has white flowers; height 4-5 feet; June-July.

\***T. aquilegifolium purpureum.**—Lilac flower; height 4-5 feet; June.

**T. dipterocarpum.**—Yunnan meadow-rue is not quite hardy at Ottawa but it is a beautiful variety with lilac-mauve flowers; height 4-5 feet; July.

**T. glaucum.**—Dusty meadow-rue; blue-green leaves; soft yellow flowers; height 4-5 feet; July.

**T. minus.**—Low meadow-rue is a dwarfer species but the horticultural varieties classed under this species are fairly tall. Propagated by seed.

**T. minus adiantifolium.**—As the name suggests, the leaves resemble those of a maiden hair fern. Flowers greenish; height 1½-3 feet; June-July.

**Thermopsis caroliniana.**—This is a tall-growing plant only suitable for the back of large borders. It is somewhat like a yellow lupine but blooms soon fade and the seed-pods are not attractive. It spreads rapidly and can be easily propagated by division of the roots and by the seeds. Height 6 feet; June-July.

**Tritoma.**—See *Kniphofia*.

**Thymus.**—Thyme is a dwarf plant suitable for rock gardens or as edging for a border. The foliage is small but very fragrant. Propagated by division of the root.

**T. serpyllum.**—Mother of thyme is a dwarf, creeping plant with tiny, pinkish-lavender flowers. There are several varieties with different coloured flowers and variegated leaves.

**T. vulgaris.**—Common thyme is useful for the edging of a border and will make a dense mat. It is of shrubby growth and is covered with purplish-pink flowers all summer.

**Tiarella cordifolia.**—Allegheny foamflower or False Mitrewort is a native plant useful for shady places in the border or rock garden. It spreads rapidly by runners and can be easily propagated by division. The flowers are creamy-white; height 1 foot; May-June.

**Torch Lily.**—See *Kniphofia*.

**Trillium.**—This is one of the choicest Canadian wild flowers and should be in every garden border. The bulbs when transplanted from the woods take kindly to their new home and grow into large clumps. When established it seeds itself, but it is difficult to make the seeds germinate if they are gathered and sown in a seedbed.

**T. erectum.**—Purple trillium has reddish flowers which have a disagreeable scent; height 9 inches; May.

\***T. grandiflorum.**—Snow trillium, the large white one that is particularly desirable for the garden. The three large petals in their frame of green sepals are very beautiful and uncommon. Height 12-18 inches; May-June.

**T. undulatum.**—Painted trillium has a smaller flower, white with a band of pink painted on the petals. This is not so easy to establish as *grandiflorum*.

**Trollius.**—Globeflower is like a glorified buttercup with its large, globular flowers of yellow and its much cut up dark green leaves. They like rich, moist soil but grow quite satisfactorily in the ordinary border. The seeds are difficult to germinate so that plants are generally propagated by division of the roots. There are several species of *trollius* but it is difficult to know where to place horticultural varieties. The following varieties can be obtained from Canadian nurserymen:

\***T. asiaticus flore croceo** has deep orange, rather open flowers; height 2 feet; May-June.

\***T. europaeus.**—Orange Globe has beautiful, rich orange flowers; height 2 feet; May-June.

**T. europaeus superbus.**—This has bright lemon coloured flowers; height 2 feet; May-June.

**T. Goldquelle.**—Large yellow flowers; height 2 feet; June.

**T. Goliath.**—Deep orange, large flowers; height 2-2½ feet; June.

**T. sinensis.**—A late-blooming variety with deep orange flowers; height 2 feet; July.

\***Tulipa.**—Tulips are well known to everyone, either as garden plants or cut flowers at the florists. There are few families of flowers that can boast of such a wide colour range or are more useful in the border. The varieties generally grown are of horticultural origin but there are a few of the true species that are quite hardy and very desirable for the garden.

Tulips are bulbs and may be planted from the end of September to November. October is, no doubt, the best time. The soil need not be rich; any ordinary garden soil is suitable, but it should be well dug and drained. A position in full sun suits them best but they will bloom in half shade for a season or two. The bulbs may be left in the ground until they become crowded and the flowers are small, or they may be lifted each year. The time to lift them is when the foliage is turning brown, or, if the space is needed earlier than this, the bulbs

should be planted close together in a shallow trench in the back garden until the foliage dies. The bulbs should be stored in bags and kept dry all summer. In fall the large sized ones may be replanted in the border and the smaller ones planted in a row in the vegetable garden for a year or two until they grow to blooming size.

Garden tulips are classified according to the date they bloom. There are a large number of varieties and it is difficult to make a selection, but the following are all good:

*Early Single*.—Used for bedding—must be replaced each year for good effect.

**Cottage Maid**.—Pink and white.

**Couleur de Cardinal**.—Crimson.

**Goldfinch**.—Yellow.

**Keizerskroon**.—Scarlet with yellow margins.

**Lady Boreel**.—White.

**Maes**.—Scarlet.

**Mon Tresor**.—Yellow.

**Prince de Ligny**.—Yellow.

**Prince of Austria**.—Coppery red.

**Queen of the Netherlands**.—Pale rose.

**Vermilion Brilliant**.—Scarlet.

**White Hawk**.—Pure white.

*Early Double*—

**Couronne d'Or**.—Yellow.

**Murillo**.—Light pink.

**Imperator rubrorum**.—Scarlet.

**Tournesol**.—Red and yellow.

*Darwin* tulips belong to the late blooming type. They have square flowers and strong, tall stems and in colour are pale blush to deep crimson, mahogany, purple and lavender. There are no yellow Darwins. The following list was arranged by Mr. Macoun and divided into the same colour groups as used by the Tulip Nomenclature Committee of the Royal Horticultural Society:—

**Scarlet-vermilion**:

Isis

Whistler

City of Haarlem

**Cochineal-red**:

Bartigon

Farncombe Sanders

Prof. Rauwenhof

Madame de Beynat

**Cerise**:

Pride of Haarlem

**Rose**:

Roi d'Island

Princess Elizabeth

Baronne de la Tonnaye

**Pale rose**:

Psyche

Suson

Flamingo

Salmon pink:

Clara Butt

**Crimson maroon**:

King Harold

Millet

**Purple-black**:

Zulu

La Tulipe Noire

**Rosy purple**:

Violet Queen

Mrs. Potter Palmer

**Lilac**:

Melicette

Rev. H. Ewbank

**Lilac**, with a lighter edge:

Electra

**Blush**:

Margaret (Gretchen)

Zephyr

*Cottage or May-flowering* tulips include a number of varieties of different colours and shapes. There is (1) the true cup, like *Bouton d'Or*, (2) the long pointed form, often showing a distinct waist, as in *Mrs. Moon*, (3) the form with pointed reflexing segments, as in *retroflexa*, and (4) the form that is in outline much like a long egg, as in *John Ruskin*.

**Picotee (Type 2).**—White, edged pink.

**Inglescombe Pink (Type 1).**

**Fulgens (Type 4).**—Cochineal-red.

**Gesneriana spathulata (Type 2).**—Cochineal-red.

**Inglescombe Scarlet (Type 2).**

**La Merveille (Type 2).**—Orange-scarlet.

**Bouton d'Or (Type 1).**—Yellow.

**Gesneriana lutea (Type 2).**—Yellow.

**Mrs. Moon (Type 2).**—Yellow.

**Avis Kennicott (Type 2).**—Yellow.

**Inglescombe Yellow (Type 1).**

**Retroflexa (Type 4).**—Primrose.

**Moonlight (Type 2-3).**—Primrose.

**Sunset (Type 2).**—Yellow edged red.

**Jaune d'Oeuf (Type 1).**—Deep lemon, flushed pale purple on outside.

**Apricot (Type 1).**—Chestnut red inside, flushed purple outside.

**John Ruskin (Type 3).**—Shot pink and orange.

**The Fawn (Type 2).**—Shot white suffused rose.

**Dutch Breeder:** Flower oval or cupped, brown, purple, red or bronze; base white or yellow, generally stained blue or green.

**Bacchus.**—Bright purple.

**Dom Pedro.**—Morocco red on cadmium yellow ground.

**Louis XIV.**—Large goblet-shaped; dark, dull bluish-violet with tawny margin.

**Turenne.**—Large egg-shape; nigrosin-violet.

*Broken or rectified* is the term given to those tulips in which the colour has become streaked. Any self-coloured flower is likely to break and there is no known method of preventing it. There are a number of named varieties of broken tulips listed by European growers, but they are seldom seen in Canada. They are sometimes sold in mixtures under the names, *Roses*, *Bybloomen*, *Bizarres* and *Rembrandts*.

Besides these florist varieties of tulips there are several species which are hardy and quite worth growing. The following have been tried at Ottawa.

**T. clusiana.**—The Lady tulip has white petals flushed outside with red. This has not proved very satisfactory. Height 12 inches; May-June.

**T. greigi.**—Orange-scarlet; height 6 inches; May.

**T. hageri.**—Deep orange; height 12 inches; May-June.

**T. kaufmanniana.**—The Water Lily tulip is one of the earliest to bloom as well as one of the most beautiful. It is quite hardy at Ottawa and has increased well. The flowers are primrose or yellow, flushed more or less on the outside with pink; height 6-12 inches; April-May.

**T. persica.**—Yellow flushed with bronze on the outside; height 6 inches; June.

*T. sylvestris*.—Yellow, sweet-scented; height 1 foot; May-June.

*Valeriana officinalis*.—Common valerian or Garden heliotrope is useful at the back of a large border. It spreads rapidly and may easily become a nuisance if not watched. The foliage is finely cut and the small, white flowers, arranged in clusters on a tall stem, are very fragrant; height  $3\frac{1}{2}$ -5 feet; June-July.

*Veronica*.—Speedwell grows in any soil but likes plenty of sunshine. It is propagated from seeds or division of the root.

*V. incana*.—Woolly speedwell has silvery grey foliage and spikes of small, blue flowers; height 1-2 feet; July.

*V. longifolia subsessilis*.—Clump speedwell has deep blue flowers; height 2-3 feet; August-September.

*V. repens*.—Creeping speedwell is useful for rock gardens; height 1-2 inches; June.

\**V. spicata*.—Spike speedwell has spikes of deep bluish-violet flowers; height 3 feet; July-October.

*Viola*.—Violets, pansies and violas belong to this genus. Pansies are best treated as annuals or biennials. Violas and violets are easily grown either in sun or shade. They are propagated by seed, division or cuttings. The bedding violas of seedsmen, so much used in England, grow well at Ottawa but they are not long-lived and should be renewed every few years, either from seed or cuttings. If the dead flowers are kept cut off the plants will bloom all season. The blooms are about the same size as pansies but are usually self-coloured. The habit of the plant is more compact so that they are more desirable plants for the border.

\**V. cornuta*.—The flowers of this species are smaller than the garden violas but the plants are free flowering and very attractive. There are mauve and white varieties.

*V. cornuta hybrida*.—In these are many larger flowered varieties with blue flowers.

*V. odorata*.—The English sweet violet is quite hardy at Ottawa. It spreads by creeping rootstalks and has small, short-stalked, purple flowers which are very fragrant. The florists' varieties are not hardy.

#### LIST OF TWENTY-FIVE HERBACEOUS PERENNIALS

<i>Aquilegia</i> in variety	<i>Gaillardia aristata</i>
<i>Arabis alpina flore pleno</i>	<i>Helianthus</i> in variety
<i>Aruncus sylvester</i>	<i>Helenium</i> in variety
<i>Aster</i> in variety	<i>Hemerocallis</i> in variety
<i>Campanula</i> in variety	<i>Iris</i> , dwarf and tall bearded, in variety
<i>Chrysanthemum maximum</i>	<i>Lupinus polyphyllus</i> in variety
<i>Clematis recta</i>	<i>Papaver nudicaule</i> and <i>orientale</i>
<i>Coreopsis grandiflora</i>	<i>Paeonia</i> in variety
<i>Delphinium hybridum</i> in variety	<i>Phlox paniculata</i> in variety
<i>Dianthus deltoides</i> and <i>plumarius</i>	<i>Rudbeckia</i> in variety
<i>Dicentra spectabilis</i>	<i>Trollius</i> in variety
<i>Epimedium</i> in variety	<i>Viola</i> in variety
<i>Filipendula</i> in variety	

## TWELVE BULBOUS PLANTS FOR PERENNIAL BORDER

Bulbocodium	Leucojum
Chionodoxa	Lilium
Colchicum	Muscari
Crocus	Narcissus
Fritillaria	Scilla
Galanthus	Tulip

## LIST OF PLANTS FOR POSITIONS WHICH HAVE VERY LITTLE SUN

Aconitum	*Hosta
Anemone japonica, pulsatilla, sylvestris	Iberis
*Aquilegia	Lilium hansonii, henryi, martagon
*Asperula	*Lobelia cardinalis
Astilbe	Lunaria
Campanula	Lupinus polyphyllus
Cimicifuga	Malva moschata
Colchicum	Mertensia virginica
*Convallaria	*Monarda didyma
Crocus	*Myosotis palustris
Digitalis ambigua, purpurea	Narcissus
Doronicum plantagineum	Phlox paniculata
*Epimedium	*Polygonatum
Eranthis	Primula denticulata, polyantha
*Helleborus niger	*Scilla
Hemerocallis	*Thalictrum
*Hepatica	*Trillium
	Viola

Those marked \* are the best to try in sunless positions.

## LIST OF PLANTS FOR DRY SITUATIONS

Achillea ptarmica, The Pearl	Digitalis ambigua
Alyssum saxatile	Echinops ritro
Anthemis tinctoria	Gaillardia aristata
Arabis	Gypsophila paniculata
Campanula carpatica	Helianthus
Cerastium tomentosum	Iris tall bearded
Chrysanthemum coccineum	Lychnis chalcedonica
Coreopsis lanceolata	Lychnis coronaria
Dianthus deltoides	Papaver
Dianthus plumarius	Thymus

**LISTS OF TWENTY-FIVE PERENNIALS RECOMMENDED FOR  
VARIOUS SECTIONS OF CANADA**

The following lists have been contributed by the Superintendents of the Experimental Farms and Stations named, except where specially noted:

AGASSIZ, B.C.

Aquilegia in variety	Columbine
Aruncus in variety (Spiraea)	Goatsbeard
Aubretia in variety	
Campanula in variety	Bellflower
Chrysanthemum	
Clematis recta	
Delphinium in variety	
Dianthus in variety	
Doronicum in variety	
Filipendula in variety (Spiraea)	Meadowsweet
Gaillardia aristata	
Geranium ibericum platypetalum	
Gypsophila in variety	
Helenium in variety	
Helianthus in variety	Sunflower
Hemerocallis in variety	Daylily
Iris, tall bearded, in variety	
Lupinus in variety	Lupine
Lychnis in variety	
Paeonia in variety	Peony
Pentstemon in variety	
Phlox in variety	
Rudbeckia in variety	
Thalictrum in variety	
Veronica in variety	
Winter protection: none.	

BEAVERLODGE, ALBERTA

1. Althaea rosea	Hollyhock
2. Aquilegia in variety	Columbine
3. Chrysanthemum coccineum	Pyrethrum
4. Delphinium in variety	
5. Dianthus barbatus	Sweet William
6. Dianthus plumarius	Pink
7. Gypsophila paniculata	
8. Hesperis matronalis	Sweet rocket
9. Iris, tall bearded	
10. Lavatera thuringiaca, Siberian variety	
11. Lychnis chalcedonica	
12. Narcissus	Daffodil
13. Paeonia	Peony
14. Papaver nudicaule	Iceland poppy
15. Papaver orientale	Oriental poppy
16. Rudbeckia laciniata flore pleno	Golden glow
17. Tulipa	Tulip
18. Viola	Pansy

Winter protection: None, except for Nos. 1, 9, 12, 13 and 17, which are mulched with manure.

## Other Species Recommended:

Achillea ptarmica, The Pearl	
Campanula carpatica	Carpathian bellflower
Dictamnus	Gasplant
Hemerocallis	Daylily
Lilium tigrinum	Tiger lily
Phlox subulata	
Veronica spicata	

## BRANDON, MAN.

Achillea ptarmica, The Pearl	
Anemone patens nutalliana	
Aquilegia in variety	Columbine
Campanula carpatica	Bellflower
Centaurea montana	
Chrysanthemum coccineum	Pyrethrum
Chrysanthemum maximum	Shasta daisy
Chrysanthemum uliginosum	Giant daisy
Delphinium in variety	
Dictamnus albus	Gasplant
Gaillardia aristata	
Gypsophila paniculata	Babybreath
Iberis sempervirens	Candytuft
Iris, tall bearded, in variety	
Lilium elegans	
Lilium tenuifolium	
Lychnis chalcedonica	
Paeonia in variety	Peony
Papaver nudicaule	Iceland poppy
Papaver orientale	Oriental poppy
Phlox subulata	
Platycodon grandiflorum	
Ranunculus acris flore pleno	Double buttercup
Rudbeckia laciniata flore pleno	Golden glow
Thymus serpyllum	
Winter protection: None.	

Seed sowing: Either early in spring in hotbeds or in June in cold frames; transplanted to the border in early autumn or spring.

## CAP ROUGE, QUE.

1. Achillea ptarmica, The Pearl	
2. Althaea rosea	Hollyhock
3. Anchusa italicica, Dropmore variety	
4. Aquilegia in variety	Columbine
5. Aster in variety	
6. Boltonia in variety	
7. Campanula persicifolia	Bellflower
8. Centaurea montana	
9. Chrysanthemum coccineum	Pyrethrum
10. Chrysanthemum maximum	Shasta daisy
11. Delphinium	
12. Dianthus barbatus	Sweet William
13. Dicentra spectabilis	Bleeding heart
14. Digitalis purpurea	Foxglove

## CAP ROUGE—Concluded

15. Iris, tall bearded, in variety	
16. Lupinus polyphyllus in variety	
17. Paeonia in variety	
18. Papaver nudicaule	Iceland poppy
19. Papaver orientale	Oriental poppy
20. Phlox in variety	
21. Platycodon grandiflorum	
22. Polemonium caeruleum	
23. Primula polyantha	Polyanthus
24. Rudbeckia in variety	
25. Viola	Pansy

Winter protection: Straw or manure from cowbarn was used for mulch.  
 Seeds sown in cold frame in June: Nos. 1, 2, 3, 4, 7, 9, 10, 11, 12, 14, 18, 19,  
 22, 23.

Seeds sown in open border in June: Nos. 16, 18, 25.

Transplanted into border in fall except *Papaver orientale* which should be planted in July, and iris in August.

## CHARLOTTETOWN, P.E.I.

1. Aconitum napellus	Monkshood
2. Alyssum saxatile	
3. Aquilegia in variety	Columbine
4. Arabis alpina flore pleno	
5. Aster novibelgi	
6. Aster Novae-angliae	
7. Aubretia in variety	
8. Campanula in variety	Bellflower
9. Chrysanthemum coccineum	Pyrethrum
10. Chrysanthemum maximum	Shasta daisy
11. Delphinium in variety	
12. Dicentra spectabilis	Bleeding heart
13. Dictamnus	Gasplant
14. Filipendula ulmaria (Spiraea)	Meadowsweet
15. Filipendula venusta	Meadowsweet
16. Gypsophila paniculata	
17. Heuchera in variety	
18. Iris, tall bearded, in variety	
19. Lupinus polyphyllus in variety	
20. Lychnis chalcedonica	
21. Paeonia in variety	Peony
22. Papaver nudicaule	Iceland poppy
23. Papaver orientale	Oriental poppy
24. Rudbeckia laciniata flore pleno	Golden glow
25. Veronica spicata	

Winter protection: Light straw is used for Nos. 2, 4, 7, 8, 9, 11, 12, 13, 16,  
 17, 18, 21, 22, 23. The remainder are hardy and need no protection. Seeds are sown in open beds in June, except *dictamnus*, which is sown in September. The plants are put in the permanent bed in spring, except No. 18, which is planted in late July, No. 23 in August and Nos. 12 and 21 in September.



Long-spurred seedling aquilegias grown at the Dominion Experimental Station, Charlottetown, P.E.I.

FORT VERMILION, ALBERTA

1. Achillea ptarmica, The Pearl	
2. Aquilegia in variety	Columbine
3. Campanula carpatica	Bellflower
4. Centaurea montana	
5. Chrysanthemum coccineum	Pyrethrum
6. Chrysanthemum maximum	Shasta daisy
7. Coreopsis grandiflora	
8. Delphinium in variety	
9. Dianthus in variety	
10. Dicentra spectabilis	Bleeding heart
11. Dictamnus	Gasplant

## FORT VERMILION—Concluded

12. <i>Hemerocallis</i> in variety	Daylily
13. <i>Hesperis matronalis</i>	Rocket
14. <i>Iris</i> , tall bearded	
15. <i>Lychnis chalcedonica</i>	
16. <i>Papaver nudicaule</i> and <i>orientale</i>	Poppy
17. <i>Paeonia</i> in variety	
18. <i>Phlox</i> in variety	
19. <i>Polemonium caeruleum</i>	
20. <i>Rudbeckia laciniata</i> flore pleno	Golden glow
21. <i>Thalictrum adiantifolium</i>	
22. <i>Veronica spicata</i>	
23. <i>Viola</i>	Pansy

This is a list of plants recommended for trial. They have not all been tested at this Station.

## FREDERICTON, N.B.

1. <i>Althaea rosea</i>	Hollyhock
2. <i>Aquilegia</i> in variety	Columbine
3. <i>Aster</i> in variety	Michaelmas daisy
4. <i>Campanula persicifolia</i>	Bellflower
5. <i>Convallaria</i>	Lily of the valley
6. <i>Delphinium</i> in variety	
7. <i>Dianthus barbatus</i>	Sweet William
8. <i>Dianthus plumarius</i>	Pink
9. <i>Digitalis purpurea</i>	Foxglove
10. <i>Gypsophila paniculata</i>	
11. <i>Helenium autumnale</i>	
12. <i>Hesperis matronalis</i>	Sweet rocket
13. <i>Iris</i> , tall bearded, in variety	
14. <i>Lilium canadense</i>	Canada lily
15. <i>Lupinus polyphyllus</i> in variety	
16. <i>Myosotis</i>	Forget-me-not
17. <i>Paeonia</i> in variety	
18. <i>Papaver nudicaule</i>	Iceland poppy
19. <i>Papaver orientale</i>	Oriental poppy
20. <i>Phlox</i> in variety	
21. <i>Ranunculus acris</i> flore pleno	Double buttercup
22. <i>Rudbeckia laciniata</i> flore pleno	Golden glow
23. <i>Saponaria officinalis</i>	Bouncing bet
24. <i>Veronica spicata</i>	
25. <i>Viola</i>	Pansy

Winter protection: Mulch with well rotted barnyard manure after the ground has frozen.

Sow seed in open bed in June. Plant in permanent quarters in autumn.

## INDIAN HEAD, SASK.

1. <i>Aconitum napellus</i>	Monkshood
2. <i>Althaea rosea</i>	Hollyhock
3. <i>Aquilegia chrysanthra</i>	Columbine
4. <i>Centaurea montana</i>	
5. <i>Chrysanthemum coccineum</i>	Pyrethrum
6. <i>Chrysanthemum maximum</i>	Shasta daisy
7. <i>Clematis recta</i>	
8. <i>Delphinium grandiflorum</i>	
9. <i>Dianthus deltoides</i>	
10. <i>Dicentra spectabilis</i>	Bleeding heart
11. <i>Doronicum plantagineum</i>	
12. <i>Eryngium alpinum</i>	
13. <i>Gypsophila paniculata</i>	
14. <i>Helianthus multiflorus</i>	Sunflower
15. <i>Hemerocallis aurantiaca</i>	
16. Iris, tall bearded, in variety	
17. <i>Lilium davuricum</i>	
18. <i>Lychnis chalcedonica</i>	
19. <i>Paeonia</i> in variety	Peony
20. <i>Papaver nudicaule</i>	Iceland poppy
21. <i>Papaver orientale</i>	Oriental poppy
22. <i>Polemonium caeruleum</i>	
23. <i>Rudbeckia laciniata flore pleno</i>	Golden glow
24. <i>Thalictrum adiantifolium</i>	
25. <i>Veronica spicata</i>	

Winter protection: Strawy manure is put in place during the last two weeks of October and removed during last weeks of April, but the litter is removed from peonies and iris before the ground begins to thaw.

Seed sowing is done in late summer or early fall and the beds are covered with straw just before the freeze-up. The seedlings may be transplanted in spring to a nursery row and planted in the border the following spring, or they may be left in the seed-bed until the first fall and then transplanted to their permanent quarters. Plants may be planted in spring or fall, except Nos. 1, 2, 3, 8, 19 and 20, which should be planted in fall.

## INVERMERE, B.C.

<i>Achillea ptarmica</i> , The Pearl	
<i>Alyssum saxatile</i>	
<i>Anchusa italic</i>	
<i>Aquilegia</i> in variety	Columbine
<i>Campanula glomerata</i>	Bellflower
<i>Chrysanthemum coccineum</i> (Pyrethrum)	
<i>Chrysanthemum maximum</i>	Shasta daisy
<i>Coreopsis grandiflora</i>	
<i>Delphinium</i> in variety	
<i>Dianthus plumarius</i>	Garden pink
<i>Eryngium alpinum</i>	
<i>Galega officinalis</i>	
<i>Gypsophila paniculata</i> , single and double	
<i>Helianthus</i> in variety	Sunflower
<i>Hemerocallis flava</i>	Daylily
Iris, tall bearded	

INVERMERE—*Concluded*

<i>Iris sibirica</i>	
<i>Limonium latifolia</i> (Statice)	
<i>Lychnis chaleedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver nudicaule</i>	Iceland poppy
<i>Phlox paniculata</i>	
<i>Rudbeckia laciniata flore pleno</i>	Golden glow
<i>Thalictrum aquilegifolium</i>	
<i>Viola</i> , fancy and tufted	Pansy

Winter protection: A light covering of litter or conifer branches in best. It is needed to hold the snow and to prevent the thawing of the ground during chinooks.

Seed sowing in the open ground is not recommended because of the alkali crust which is liable to form. Best results are obtained by sowing in gentle heat in April, pricking off as soon as possible and planting in permanent positions when large enough, preferably in June, July or early August. Large plants should be transplanted in spring, as early as conditions permit.

## KAPUSKASING, ONT.

1. <i>Achillea ptarmica</i> , The Pearl	
2. <i>Aquilegia</i> in variety	Columbine
3. <i>Aruncus sylvester</i>	
4. <i>Campanula carpatica</i>	Bellflower
5. <i>Campanula persicifolia</i>	
6. <i>Chrysanthemum maximum</i>	Shasta daisy
7. <i>Clematis recta</i>	
8. <i>Coreopsis grandiflora</i>	
9. <i>Delphinium</i> in variety	
10. <i>Dianthus</i> in variety	Pinks
11. <i>Dictamnus albus</i>	Gasplant
12. <i>Gaillardia aristata</i>	
13. <i>Helianthus</i> in variety	Sunflower
14. <i>Hemerocallis</i> in variety	Daylily
15. <i>Iris</i> , tall bearded	
16. <i>Lilium tigrinum</i>	Tiger lily
17. <i>Lychnis chaleedonica</i>	
18. <i>Paeonia</i> in variety	Peony
19. <i>Papaver nudicaule</i>	Iceland poppy
20. <i>Papaver orientale</i>	Oriental poppy
21. <i>Phlox subulata</i>	
22. <i>Platycodon grandiflorum</i>	
23. <i>Rudbeckia laciniata flore pleno</i>	Golden glow
24. <i>Trollius europaeus</i>	
25. <i>Veronica spicata</i>	

Nos. 2, 3, 5, 6, 8, 9, 10, 18, 19, 22 and 23 have been proved hardy and the others are recommended for trial. Seed was sown in the cold frame in May and transplanted into nursery rows in June. A light covering of straw was put on just before the freeze-up. The plants were put out into the border in the spring. Nothing was added for a mulch on the bed, but the tops of the plants were left until spring.

## KENTVILLE, N.S.

<i>Achillea ptarmica</i> , The Pearl	
<i>Althaea rosea</i>	Hollyhock
<i>Anchusa italic</i> a	
<i>Aquilegia</i> in variety	Columbine
<i>Aster</i> in variety	Michaelmas daisy
<i>Campanula persicifolia</i>	Bellflower
<i>Chrysanthemum coccineum</i> (Pyrethrum)	
<i>Coreopsis grandiflora</i>	
<i>Delphinium</i> in variety	
<i>Digitalis purpurea</i>	Foxglove
<i>Dictamnus albus</i>	Gasplant
<i>Doronicum plantagineum</i>	
<i>Gaillardia grandiflora</i>	
<i>Gypsophila paniculata</i>	
<i>Helenium autumnale</i>	
<i>Helianthus scaberrimus</i> (rigidus)	Sunflower
<i>Iris</i> in variety	
<i>Limonium latifolium</i>	Statice
<i>Lupinus polyphyllus</i> in variety	Lupine
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver nudicaule</i> and <i>orientale</i>	Poppy
<i>Phlox paniculata</i> in variety	
<i>Platycodon grandiflorum</i>	
<i>Rudbeckia laciniata</i> flore pleno	Golden glow
Winter protection: None.	

Seed sowing: Outdoor beds in spring. Plant in permanent places early in spring. Divide peonies end of August or beginning of September.

## LACOMBE, ALBERTA

<i>Aconitum napellus</i>	Monkshood
<i>Aquilegia</i> in variety	Columbine
<i>Campanula</i> in variety	Bellflower
<i>Delphinium</i> in variety	Larkspur
<i>Dianthus</i> in variety	Pink
<i>Dicentra spectabilis</i>	Bleeding heart
<i>Dictamnus albus</i>	Gasplant
<i>Doronicum plantagineum</i>	Leopard's bane
<i>Chrysanthemum coccineum</i>	Pyrethrum
<i>Eryngium alpinum</i>	Sea Holly
<i>Gypsophila paniculata</i>	Baby's breath
<i>Helianthus</i> in variety	Sunflower
<i>Hemerocallis</i> in variety	Day lily
<i>Hesperis matronalis</i>	Sweet rocket
<i>Iris</i> , tall bearded	Flag
<i>Lilium tigrinum</i>	Tiger lily
<i>Lychnis chalcedonica</i>	Jerusalem cross
<i>Paeonia</i> in variety	Peony
<i>Papaver nudicaule</i>	Iceland poppy
<i>Phlox</i> in variety	
<i>Polemonium caeruleum</i>	Jacob's ladder
<i>Rudbeckia laciniata</i> flore pleno	Golden glow
<i>Thalictrum adiantifolium</i>	Meadow rue
<i>Veronica spicata</i>	Speedwell
<i>Viola</i>	Pansy

Winter protection: Dry horse manure, applied late in fall.

Seed sowing: Either in spring or fall in boxes in cold frames so that they can be watered in dry years. Transplanting is done, if possible, in showery weather. The fall-sown plants are planted out early enough to allow them to get well rooted for carrying over winter and the spring-sown plants are placed in the permanent beds in time to have them well rooted before hot, dry weather sets in.



Herbaceous border at the Dominion Experimental Station, Lacombe, Alberta.

#### LA FERME, P.Q.

<i>Achillea ptarmica</i> , The Pearl	
<i>Aquilegia</i> in variety	Columbine
<i>Aruncus sylvester</i>	Goatsbeard
<i>Campanula carpatica</i>	Bellflower
<i>Campanula persicifolia</i>	
<i>Chrysanthemum maximum</i>	Shasta daisy
<i>Clematis recta</i>	
<i>Coreopsis grandiflora</i>	
<i>Delphinium</i> in variety	
<i>Dianthus</i> in variety	Pink
<i>Dictamnus albus</i>	Gasplant
<i>Gaillardia aristata</i>	Blanket flower
<i>Helianthus</i> in variety	Sunflower
<i>Hemerocallis</i> in variety	
Iris, tall bearded	
<i>Lilium tigrinum</i>	Tiger lily
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver nudicaule</i>	Iceland poppy
<i>Papaver orientale</i>	Oriental poppy

## LA FERME—Concluded

<i>Phlox subulata</i>	
<i>Platycodon grandiflorum</i>	
<i>Rudbeckia laciniata flore pleno</i>	Golden glow
<i>Trollius europaeus</i>	
<i>Veronica spicata</i>	

This is a list of plants recommended for trial. They have not all been tested at this Station.

## LENNOXVILLE, P.Q.

<i>Althaea rosea</i>	Hollyhock
<i>Anchusa barrelieri</i>	
<i>Aquilegia</i> in variety	Columbine
<i>Bellis perennis</i>	English daisy
<i>Campanula pyramidalis</i>	Bellflower
<i>Chrysanthemum coccineum</i>	Pyrethrum
<i>Chrysanthemum maximum</i>	Shasta daisy
<i>Clematis recta</i>	
<i>Delphinium</i> in variety	
<i>Dianthus barbatus</i>	Sweet William
<i>Dianthus plumarius</i>	Pink
<i>Echinacea purpurea</i>	Purple coneflower
<i>Gaillardia aristata</i>	
<i>Helianthus</i> in variety	Sunflower
<i>Helenium autumnale</i>	
<i>Iris</i> , tall bearded, in variety	
<i>Iris</i> , Japanese, in variety	
<i>Lupinus polyphyllus</i> in variety	Lupine
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	
<i>Papaver nudicaule</i>	Iceland poppy
<i>Papaver orientale</i>	Oriental poppy
<i>Phlox</i> in variety	
<i>Primula polyantha</i>	
<i>Veronica spicata</i>	

Winter protection. None absolutely necessary, but a light top-dressing of one and a half inches of horse manure after the ground is frozen is beneficial.

Seed sowing: All the species mentioned, except peonies, iris and phlox, are easily raised from seed sown in the open late in spring. The seedlings are transplanted to a permanent position in late September or early October. The first year after transplanting they are mulched quite heavily with coarse straw or very strawy manure.

## LETHBRIDGE, ALTA.

1. *Achillea ptarmica*, The Pearl
2. *Aquilegia* in variety Columbine
3. *Campanula carpatica* Bellflower
4. *Centaurea montana*
5. *Chrysanthemum coccineum* Pyrethrum
6. *Chrysanthemum maximum* Shasta daisy
7. *Coreopsis grandiflora*
8. *Delphinium* in variety
9. *Dianthus* in variety

## LETHBRIDGE—Concluded

10. <i>Dicentra spectabilis</i>	Bleeding Heart
11. <i>Dictamnus</i>	Gasplant
12. <i>Hemerocallis</i> in variety	Daylily
13. <i>Hesperis matronalis</i>	Rocket
14. <i>Iris</i> , tall bearded	
15. <i>Lychnis chalcedonica</i>	
16. <i>Papaver nudicaule</i> and <i>orientale</i>	Poppy
17. <i>Paeonia</i> in variety	
18. <i>Phlox</i> in variety	
19. <i>Polemonium caeruleum</i>	
20. <i>Rudbeckia laciniata</i> flore pleno	Golden glow
21. <i>Thalictrum adiantifolium</i>	
22. <i>Veronica spicata</i>	
23. <i>Viola</i>	

This list has been compiled by the Dominion Horticulturist as suitable for trial. The plants have not all been tested at this Station.

## MORDEN, MAN.

<i>Achillea ptarmica</i> , The Pearl	
<i>Aquilegia</i> in variety	Columbine
<i>Aster</i> in variety	
<i>Cerastium tomentosum</i>	
<i>Chrysanthemum coccineum</i>	Pyrethrum
<i>Chrysanthemum maximum</i>	Shasta daisy
<i>Delphinium</i> in variety	
<i>Dianthus coccineus</i>	
<i>Dianthus plumarius</i>	Pink
<i>Dicentra spectabilis</i>	Bleeding heart
<i>Filipendula hexapetala</i> ( <i>Astilbe filipendula</i> )	



Perennial border at the Dominion Experimental Station, Morden, Manitoba.

## MORDEN—Concluded

<i>Filipendula rubra</i> ( <i>Astilbe venusta</i> )	
<i>Filipendula ulmaria</i> ( <i>Astilbe ulmaria</i> )	
<i>Gypsophila paniculata</i>	
<i>Helenium autumnale</i>	
<i>Iris</i> , tall bearded, in variety	
<i>Lilium tenuifolium</i>	Siberian coral lily
<i>Lilium tigrinum</i>	Tiger lily
<i>Lilium umbellatum</i>	
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver orientale</i>	Oriental poppy
<i>Phlox</i> in variety	
<i>Rudbeckia laciniata flore pleno</i>	Golden glow
<i>Rudbeckia speciosa</i>	Showy coneflower
<i>Sedum Spectabile</i>	Showy stonecrop
<i>Thalictrum glaucum</i>	
<i>Viola</i>	Pansy

Winter protection: Covering of six inches of straw.

Seed sowing: Open beds in third week of May. Transplanting is done in spring, except iris, peonies and lilies, which are best planted in early autumn.



*Lupinus polyphyllus* (perennial lupine) growing at Morden, Manitoba.

## NAPPAN, N.S.

1. Anemone	
2. Aquilegia in variety	Columbine
3. Aruncus (Spiraea)	Goatsbeard
4. Campanula persicifolia	Bellflower
5. Chrysanthemum maximum	Shasta daisy
6. Delphinium in variety	Larkspur
7. Dianthus barbatus	Sweet William
8. Dianthus plumarius	Pink
9. Filipendula (Spiraea)	Meadowsweet
10. Gypsophila paniculata	
11. Helianthus in variety	Sunflower
12. Hemerocallis in variety	Daylily
13. Hesperis matronalis	White rocket
14. Hosta (Funkia) in variety	Plantain lily
15. Iris, tall bearded	Flag
16. Lilium in variety	Lily
17. Lupinus polyphyllus	Lupine
18. Paeonia in variety	Peony
19. Papaver nudicaule	Iceland poppy
20. Papaver orientale	Oriental poppy
21. Phlox in variety	
22. Rudbeckia laciniata flore pleno	Golden glow

Winter protection: Mulch with straw after ground is frozen.

Seed sowing: Cold frames in July in drills six to eight inches apart. When the seedlings are about one inch in height they are thinned out to about three inches apart. A heavy mulch of straw is put on after the ground freezes. In spring the plants are dug up with plenty of earth left around the roots and placed about a foot apart in nursery rows. Planting into the permanent position may be done in September, but by leaving the plants in the nursery until the following spring, a stronger crown is developed. This procedure applies to Nos. 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 17, 21 and 22. The seeds are sown in the nursery row for Nos. 2, 13, and 19, while Nos. 12, 14, 15, 16, and 18 are propagated by bulbs and root division.



Perennial border at the Dominion Experimental Station, Rosthern, Saskatchewan.



Tiger lilies (*Lilium tigrinum*) at the Dominion Experimental Station, Rosthern, Saskatchewan.

ROSTHERN, SASK.

<i>Achillea millefolium rubra</i>	
<i>Achillea ptarmica flore pleno</i> , The Pearl	
<i>Anthemis tinctoria Kelwayi</i>	
<i>Aquilegia caerulea</i>	Columbine
<i>Campanula carpatica</i>	Bellflower
<i>Chrysanthemum coccineum</i>	Pyrethrum
<i>Chrysanthemum leucanthemum</i>	Oxeye daisy
<i>Clematis integrifolia</i>	
<i>Coreopsis lanceolata</i>	
<i>Delphinium</i> in variety	
<i>Dianthus plumarius flore pleno</i>	Pink
<i>Gaillardia aristata</i>	
<i>Gypsophila paniculata flore pleno</i>	
<i>Helianthus scaberrimus (rigidus)</i>	Miss Mellish
<i>Hemerocallis flava</i>	Daylily
<i>Iris</i> , tall bearded	
<i>Iris sibirica</i>	
<i>Lilium tigrinum</i>	Tiger lily
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver nudicaule</i>	Iceland poppy
<i>Papaver orientale</i>	Oriental poppy
<i>Phlox subulata atropurpurea</i>	
<i>Tulips</i> in variety	Tulip
<i>Veronica spicata</i>	

Winter protection: None, as the perennial border is protected by hedge of shrubs which helps to hold the snow in winter and prevents thawing in early spring.

## SYDNEY, B.C.

Anchusa italicica	
Anemone	St. Brigid
Aquilegia in variety	Columbine
Aster in variety	Michaelmas daisy
Campanula in variety	Bellflower
Chrysanthemum in variety	Pyrethrum
Coreopsis grandiflora	Shasta daisy
Delphinium in variety	Autumn-flowering chrysanthemum
Dianthus in variety	
Dicentra spectabilis	Pinks
Digitalis in variety	Bleeding heart
Doronicum plantagineum	Foxglove
Geum in variety	
Gypsophila paniculata	
Helleborus niger	Christmas rose
Hemerocallis in variety	Daylily
Iris in variety	
Lilium in variety	Lily
Lupinus in variety	Lupine
Lychnis chalcedonica	
Paeonia in variety	Peony
Papaver in variety	Poppy
Phlox in variety	
Primula in variety	
Rudbeckia in variety	

Winter protection: None, except for St. Brigid anemones, which are covered with leaves.

Seed sowing: About March in open beds. Cold frames are better if available. The beginning of the wet season in October is the best time for transplanting.

## SCOTT, SASK.

1. Achillea ptarmica, The Pearl	
2. Aquilegia in variety	Columbine
3. Campanula carpatica	Bellflower
4. Centaurea montana	
5. Chrysanthemum coccineum	Pyrethrum
6. Chrysanthemum maximum	Shasta daisy
7. Coreopsis grandiflora	
8. Delphinium in variety	Pink
9. Dianthus in variety	Bleeding heart
10. Dicentra spectabilis	Gasplant
11. Dictamnus	
12. Hemerocallis in variety	Daylily
13. Hesperis matronalis	Rocket
14. Iris, tall bearded	
15. Lychnis chalcedonica	
16. Papaver nudicaule and orientale	Poppy
17. Paeonia in variety	Peony



Peonies at the Dominion Experimental Station, Scott, Saskatchewan.



Perennial border at the Dominion Experimental Station, Scott, Saskatchewan.

### SCOTT—Concluded

Winter protection: None, except for 9, 10, 16 and 22, which need a slight covering of strawy manure.

Sow seeds in cold frames from April 15 to 30 for Nos. 2, 3, 5 and 22. Sow seeds in open bed from May 5 to 15 for Nos. 6, 7, 8, 9, 11, 13, 15, 16, 18 and 19. Sow seeds in autumn of Nos. 4 and 11. Plant in permanent bed in spring Nos. 2, 3, 5, 7, 8, 9, 11, 13, 15, 18, 19 and 22. Propagated by root division in spring, Nos. 12 and 17. Propagated by root division in autumn, Nos. 1, 4, 10, 14, 15, 17, 20, 21 and 22.

STE. ANNE DE LA POCATIÈRE, P.Q.

<i>Achillea ptarmica</i> flore pleno, The Pearl	
<i>Althaea rosea</i>	Hollyhock
<i>Anchusa italicica</i>	
<i>Anthemis tinctoria</i>	
<i>Aquilegia</i> in variety	Columbine
<i>Campanula persicifolia</i>	Bellflower
<i>Coreopsis lanceolata</i>	
<i>Delphinium</i> in variety	
<i>Dianthus</i> in variety	
<i>Dictamnus albus</i>	Gasplant
<i>Digitalis</i>	Foxglove
<i>Gaillardia aristata</i>	
<i>Gypsophila paniculata</i>	
<i>Helianthus</i> in variety	Sunflower
<i>Helenium</i> in variety	
<i>Hesperis matronalis</i>	Rocket
<i>Iris</i> in variety	
<i>Lilium</i> in variety	Lily
<i>Lupinus polyphyllus</i>	Lupine
<i>Lychnis chalcedonica</i>	
<i>Paeonia</i> in variety	Peony
<i>Papaver orientale</i>	Oriental poppy
<i>Phlox</i> in variety	
<i>Platycodon grandiflora</i>	
<i>Rudbeckia</i> in variety	

Winter protection: Covering of four inches strawy manure applied when the ground is frozen.

Seed sowing: July and August in open beds. Transplant to permanent bed in spring.

## SUMMERLAND, B.C.

1. <i>Althaea rosea</i>	
2. <i>Alyssum saxatile</i>	
3. <i>Aquilegia</i> , long-spurred	Columbine
4. <i>Arabis alpina</i> flore pleno	
5. <i>Aubretia deltoides</i> hendersoni	
6. <i>Campanula pyramidalis</i>	Bellflower
7. <i>Chrysanthemum coccineum</i>	Pyrethrum
8. <i>Chrysanthemum maximum</i>	Shasta daisy
9. <i>Coreopsis lanceolata</i>	
10. <i>Delphinium</i> in variety	
11. <i>Dianthus plumarius</i>	Pink
12. <i>Dononium caucasicum</i>	
13. <i>Gypsophila paniculata</i>	
14. <i>Hemerocallis</i> in variety	Daylily
15. <i>Iris</i> , tall bearded	
16. <i>Lilium umbellatum</i>	Orange Lily
17. <i>Lychnis chalcedonica</i>	
18. <i>Paeonia</i> in variety	Peony
19. <i>Papaver orientale</i>	Oriental poppy
20. <i>Phlox paniculata</i> in variety	
21. <i>Platycodon grandiflora</i>	
22. <i>Rudbeckia laciniata</i> flore pleno	Golden glow
23. <i>Saponaria ocymoides</i>	
24. <i>Veronica spicata</i>	
25. <i>Viola</i>	

Winter protection: None, except for No. 25, which is covered lightly with straw.

Seed sowing: Nos. 2, 3, 7, 8, 10, 11, 12, 13, 17, 19, 22 and 23 are sown in spring in open beds or flats. Nos. 1 and 9 are sown in midsummer in open beds. Nos. 5, 6, 16 and 25 are sown in flats under glass in midsummer. The seedlings are transplanted to nursery beds for about a year and transferred to the permanent position in spring, except Nos. 5, 9 and 25, which are moved in autumn. Nos. 14, 15 and 18 are propagated by root division in fall, while No. 20 is best divided in spring.

## SWIFT CURRENT, SASK.

<i>Achillea ptarmica</i> , The Pearl	
<i>Althaea rosea</i>	Hollyhock
<i>Anchusa italicica</i>	
<i>Aquilegia</i> in variety	Columbine
<i>Arabis alpina</i>	
<i>Cerastium tomentosum</i>	
<i>Chrysanthemum coccineum</i>	Pyrethrum
<i>Coreopsis lanceolata</i>	
<i>Delphinium</i> in variety	
<i>Dianthus</i> in variety	Pinks
<i>Gaillardia aristata</i>	
<i>Gypsophila paniculata</i>	
<i>Iberis sempervirens</i>	Candytuft
<i>Iris</i> , tall bearded, in variety	
<i>Linum sibiricum</i>	
<i>Lychnis chalcedonica</i>	
<i>Myosotis</i>	Forget-me-not
<i>Papaver nudicaule</i>	Iceland poppy
<i>Papaver orientale</i>	Oriental poppy
<i>Viola</i>	Pansy

SWIFT CURRENT—*Concluded**Others That Should be Tried*

*Campanula carpatica*

*Lavatera thuringiaca*, Siberian form

*Lilium tigrinum*

*Veronica spicata*

Winter protection: Twelve inches of wheat straw, free as possible from weed or grain seeds, applied after first severe frost and left until growing season begins in spring.

Seed sowing: Early as possible in spring in open beds. Transplant to permanent quarters in early autumn so that plants are well established before the dry summer weather.







3 9073 00215564 8

## DATE DUE

FEB 24 2009

TURE

dening.

GAYLORD

PRINTED IN U.S.A.

J. McKee,  
Greenhouse Specialist.

Isabella Preston,  
Specialist in Ornamental Gardening.

Ethel W. Hamilton,  
Canning Specialist.

OTTAWA  
F. A. ACLAND  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1929